American Aviation

The Independent Voice of American Aeronautics **FEBRUARY 15, 1944**

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British Observations

Fortnightly Review

LONDON (by cable)—To an American who has seen huge new mile-long aircraft factories appear overnight in midwest prairies, and production goals high in scores of thousands, British aircraft production presents a highly interesting contrast. Perhaps the most striking feature of all is the absence of waste in material, manpower and factory space.

Britain's aircraft industry has developed and expanded under the stress of war, and the proximity of every inch of the British Isles to enemy bases is an ever present and realistic factor. Britain was quite unprepared in the air when war came, and there has been no time to build huge modern establishments on the American scale. Indeed, any concentration of production on single large units was out of the question with enemy bombers only minutes away. The whole problem was to get as much as possible out of what resources were at hand.

As guest of the British Ministry of Aircraft Production, your editor has seen aircraft, engine and instrument production, repair depots and plants and has talked with numerous officials concerned with production. Here are a few random observations on the reclamation of materials and parts.

The British have by necessity gone much further than American industry. There is the greatest economy in materials of all kinds. Engines which we would wash out entirely are repaired and reclaimed. Salvage is detailed and comprehensive and everything is used over and over again. Maintenance design has progressed far, and maintenance officials have considerable power to authorize changes in design to facilitate maintenance.

(Turn to page 9)

Plans Mexican Routes

T. E. Braniff, president of Braniff Airways, has been granted a permit by the Mexican government for operation of 2,643 miles of air routes in Mexico. He controls a new company, Aerovias Braniff, S. A. (See page 19.)

Late Bulletins

Burke Joins AMEX

Thomas Burke, who resigned recently as chief of International Communications of the State Dept., has been elected vice president of American Export Airlines and will have charge of the company's international relations.

MacCracken Named

Representatives of the Aeronautical Chamber of Commerce, NAA, NASAO, NATA, Aviation Distributors and Manufacturers Association, the insurance group and the Early Birds met in Washington Feb. 7, reaffirmed their opposition to the Lea Bill, and named William P. MacCracken Jr., NAA counsel, as chairman of their civil aviation joint legislative committee.

Trend of the News

Agreement on Chamber: The aircraft industry, representing major companies in both the West Coast and East Coast areas, is now in substantial agreement on the immediate necessity of establishing in Washington an adequate organization to represent the industry as a trade association—thus removing one of the last barriers to a final determination of the status of the Aeronautical Chamber of Commerce. It is understood that during the past several days a committee representing the two regions has been conferring on the exact pattern to be followed from the standpoint of organization and personnel. The manufacturing industry is now thoroughly in accord with the contention that its trade organization must be soundly set up and functioning smoothly before the transition to peacetime production is here in reality.

Providing Wage Data: Major aircraft manufacturers are expected soon to choose a permanent industry representative to sit on the airframe panel of the War Labor Board. Consideration is being given to the establishment in Washington of a research office to furnish the industry representative with necessary data. Charles R. Hook Jr., assistant to the president of Rustless Iron & Steel Co., Baltimore, who has been the industry representative for the past four months, is expected to continue on a temporary basis.

Postwar Survey: The Civil Aeronautics Administration is seeking to determine exactly what plans Army airmen have with regard to postwar aviation. CAA has requested the Army to ask airmen several questions when they return from the fronts to the Army redistribution centers. CAA wants to know if the airmen regard their flying as purely a wartime activity, whether they will go into some other business after the war but continue to fly on weekends, whether they want to own their own plane, whether they plan to make aviation their life work, etc. Answers are not expected to be compiled for some time yet. When they are, they may furnish valuable data to many aviation officials interested in the industry's future.

Controversial Report: The CAB examiner's report on the Local-Feeder-Pickup

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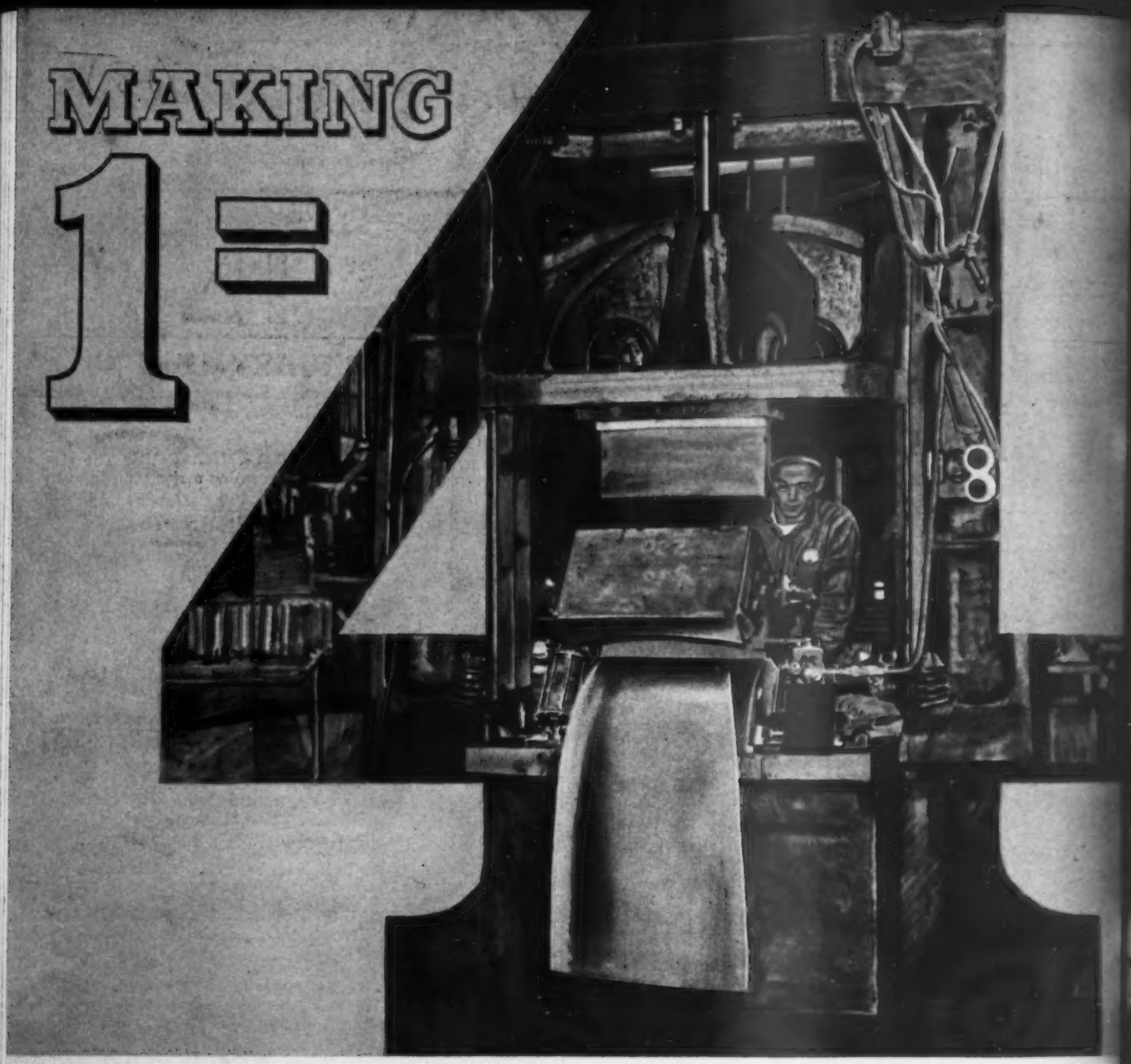

Air power has never been more vital to the success of America and its Allies than at present. Every additional plane supplied for theatres of combat, brings victory that much closer. That's why speeding up even one of the many operations necessary to build a plane, is important—particularly when the operation was difficult, and can now be accomplished in one-fourth the time formerly necessary.

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This is but one of many new developments and refinements employed by McDonnell in the production of high-quality planes, parts, and plastics for war. But it's one more reason for McDonnell's reputation for meeting production requirements *on schedule.*

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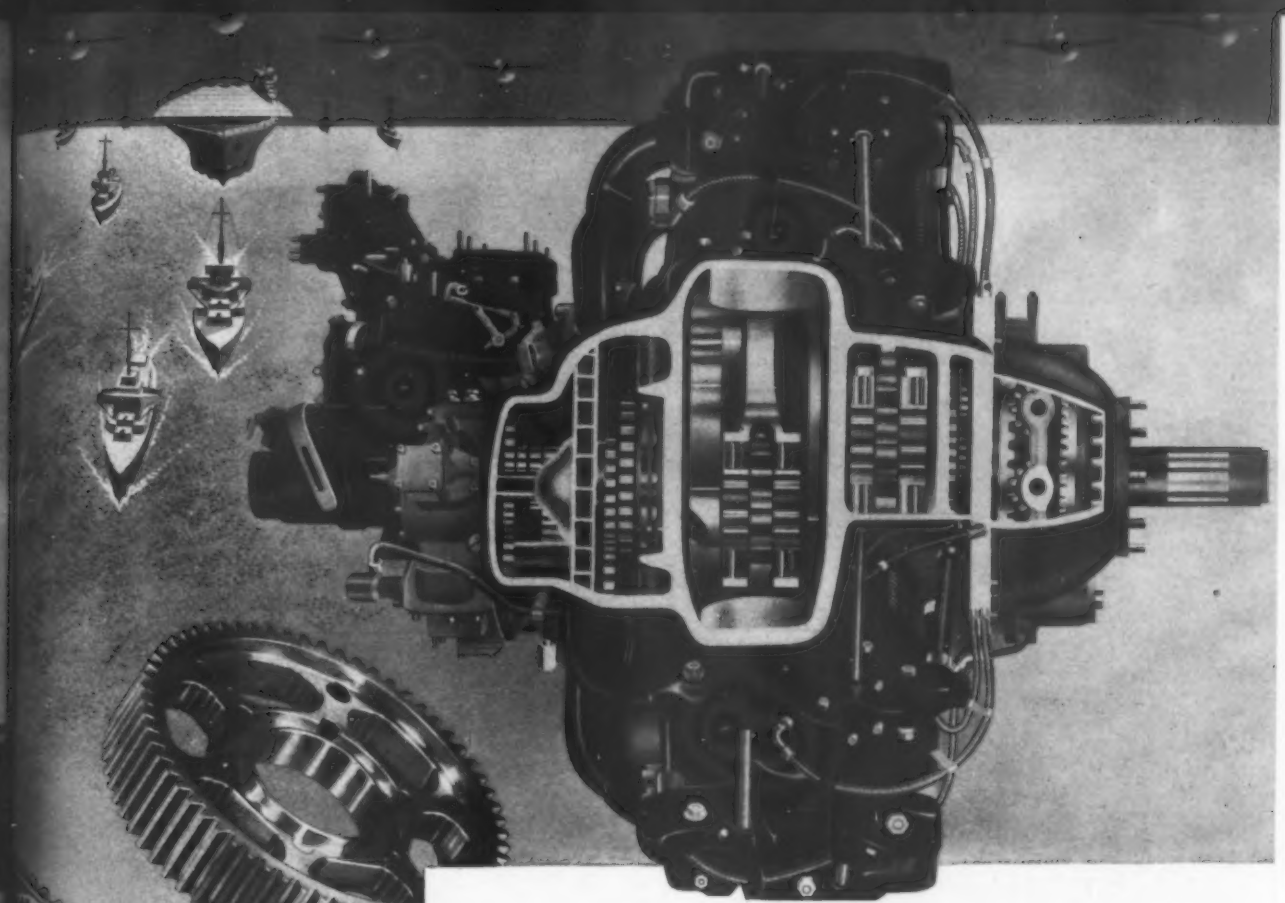

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American Aviation

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ARMY E NAVY

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Trends

(Continued from page 1)

investigation has set up some rather lusty howls in aviation circles. However, the Board is to be commended for having made an impartial investigation in which all parties at interest were permitted to testify. The report poses the problems. Comment and criticism should help the Board in establishing a sound policy for the future of domestic aviation.

Public Hearings Planned: Senate Commerce Committee planned to wind up executive sessions on post war air policy last week and swing into open sessions in the near future, according to a report from Sen. Bennett C. Clark (D., Mo.), chairman of the aviation subcommittee. His report bears out the prediction of *American Aviation* in this column on January 15 that public discussion on postwar air policy was in order. At last week's executive sessions, shipping representatives presented their case, with William K. Jackson, vice president and general counsel of United Fruit Co., and Robert Patchin and Harold Roig of Panagra, testifying. The Committee planned to conclude executive sessions, as this issue went to press, with testimony from Juan T. Trippe, president of PAA, Jack Frye, president of TWA, and representatives of American Export Airlines.

Taxes for Airports: A proposal made a year ago by the President's special committee for coordination of fiscal affairs in government called, among other things, for the segregation of aviation gasoline tax money for use specifically for improvement of airports, airway safety facilities and such uses. So far the proposition has made little headway, but legislation to this end is to be introduced in the next session of the Ohio legislature. Some observers feel that it is up to the aviation industry to push similar legislation in other states.

Peacetime Products: New products, other than aircraft, are planned by 35% of the present airplane manufacturers (including motors and parts) in the postwar period, according to Donald M. Hobart, manager of the research department of the Curtis Publishing Co. which recently made an analysis of postwar preparation activities by industries. Seventeen aircraft firms were included in the survey. Airplane companies, the survey showed, plan to make cameras, optical equipment, farm implements, household appliances and building materials. Likewise, airplanes and Diesel engines for airpower will be made by machinery and equipment companies, the survey showed. Postwar planning now is a definite, organized activity in 60% of the 350 major companies in all lines included in the survey, while in others, with few exceptions, planning has been part of the program or is linked with day-to-day thinking. Airplane companies were among those estimating the quickest reconversion time, Hobart said.

Postwar Training: Civilian contract Primary flight schools may continue training AAF cadets after the war, since this method has proved not only effective but more economical than the Army-operated flight schools. Primary school officials are predicting a postwar continuance of Army-civilian joint training for the maintenance of an effective Air Force. "Safety and efficiency records resulting from the Army-flying school partnership have been so outstanding that they command consideration as a permanent policy," they state.

N.A.M. Viewpoint: The National Association of Manufacturers through its Postwar Committee has added a strong voice against monopoly in air transport and in behalf of international machinery to supervise international air transport—although it feels the precise form of postwar international air transport regulations can only be determined after the war ends. Its argument is: "Just as this nation has, with only brief exceptions, advocated 'freedom of the seas' for over a century, so should we advocate 'freedom of the air' in the years ahead. This principle should not, however, affect the long established right of any nation to confine travel between cities in its own borders to ships or planes of its own nationality. Just as we have encouraged competition in domestic business, so should we provide for competition in postwar air transport, under proper safety and traffic regulations, and certificates of public necessity and convenience."

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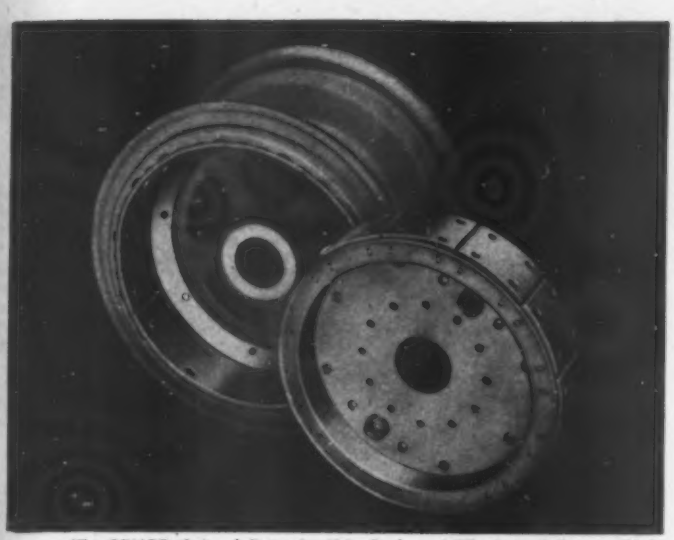

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AVIATION GASOLINE

Editorial

(Continued from page 1)

There is a minimum of duplicating government controls. Cumbersome as the extensive manpower and production machinery may seem at times, this machinery functions satisfactorily without the many duplications and conflicts of authority in Washington. A single ministry has complete charge of all aircraft production, including everything from construction of factories to handling manpower allocations. Manpower is rigidly controlled by the National Service Act, which brings both advantages and disadvantages. There is almost no changing of jobs and because manpower is seriously short, there is no wastage. Wages have not gotten out of hand, and individual manufacturers do not compete for labor by offering higher wages. Instead, they are allocated labor according to availability and other war needs.

Skilled men in the industry are relatively scare, and women are playing a role in aircraft work similar to that in America. The percentage of women employed is about the same in both countries, and they are doing the same general types of work.

Aviation generally is more highly recognized here as a war necessity than it was in America until recently. It rates much higher government administration—three cabinet members are directly concerned with it.

There is no massive assembly line production in Britain, but the dispersal systems work satisfactorily. Big labor-saving machinery units are found but infrequently, hence aircraft output is not susceptible to tremendous expansion as it is in America. However, all plants are humming.

It is truly amazing to see what the British have done with so little.

Safeguarding Air Mail

IN ALL of the forthcoming discussions about international air transportation, we hope air mail will not be relegated into the background.

It seems to us that if the peoples of the world are to have the best possible air mail service, there are two matters needing attention.

One is a standard mail pay per pound mile for all carriers of all countries. This standard mail pay may vary from one section of the world to another, depending upon volume, traffic, schedules, and other factors, but certainly in each individual area (such as the North Atlantic), a standard measure of payment should be established. This pattern was followed successfully in prewar Europe. By standardizing pay, then mail can always depart on the first airplane out.

The second thought is in expediting mail on all schedules. Undoubtedly there will be numerous instances of rights of transit where airlines have the right only to land for refueling and not to take on or discharge passengers and cargo. But why not permit such planes to take on or discharge mail? The primary purpose of air mail is to speed it to its destination. Mail should never be left on the ground if there is space or allowable weight on a departing plane. Mail should not be subject to the restrictions of commercial passengers and cargo—not if the public is to be given adequate service.

The Baggage Problem

WHEN planning domestic transport planes for peacetime utilization, the aircraft designers must not overlook the baggage problem. Valuable time lost at each airport in loading and unloading baggage, and in getting baggage to passengers on arrival at their destination, is a factor both in economics and in passenger relations. To take a 35-minute flight on a business trip to save time over surface travel, and then to wait 22 minutes for baggage (as one of our friends did recently), is not a good sales argument for air transportation.

Reliable as the DC-3 has been, it was not designed to carry 100% loads of passengers, mail and cargo, and make a lot of 15-minute stops with any sort of efficiency. There are many in the industry who believe that airline passenger baggage should move in and out of the plane with the passengers. This requires baggage wells under the seats, or inside shelves. At last it is generally conceded that the passenger should be able to have one bag accessible to him within the plane.

Proper baggage planning will save time, which is what the air passenger buys when he uses the airlines. Proper baggage planning will save airlines many future headaches in lost baggage and damage claims. Proper planning will do a real public relations job for the airlines in the era when many new travelers take to the airlanes.

Common Sense on Airports

IN ST. LOUIS last month Representative Jennings Randolph of West Virginia told the National Aviation Trades Association that no airport plans should be drawn up without a parallel plan for an arterial high-speed highway connecting the airport with the heart of the city. This makes a lot of sense. A direct super-highway connection with the down-town city area should be as much a part of an airport plan as the runways themselves. One should not be built without the other. The sooner we come to thinking of the highway connection as being an *integral part of an airport*, the sooner we will bring aviation facilities to the average person. An airport is a vital link in air transportation. But so is the highway link to the passenger's destination. To date the weak link in this air transportation chain is the highway.

A city that designs a splendid airport but has not arranged for simultaneous construction of a direct through express highway is only doing half the job of bringing air facilities to its doorsteps.

WAYNE W. PARRISH

Sweetwater, Tex.

WE NOTICED THE EDITORIAL IN YOUR FEBRUARY ISSUE IN WHICH YOU REFER TO THE WASPS RECORD AS BEING NOT SO HOT. HOW DO YOU RECONCILE THIS STATEMENT WITH YOUR COMMENTS MADE IN THE AMERICAN AVIATION DAILY JANUARY 5, 1944 ON PAGE 17. DO YOU THINK YOUR DESTRUCTIVE CRITICISM IS HELPFUL TO THE WAR EFFORT.

The WASP Trainees
Avenger Field

(The War Dept. release reported in AMERICAN AVIATION DAILY on Jan. 5 dealt with the WASP's safety record, which last issue's editorial did not attack. The editors still maintain that many other aspects of the WASP's overall record aren't so hot. And neither is it "helpful to the war effort" to have 5,000 trained instructors thrown out of jobs or into the walking army.—Ed. Note.)

•

Rochester, N. Y.

To the Editor:

Your article relative to WASPS in the recent issue of this magazine was reprinted in last night's Rochester Times Union.

This is the first article that I have seen on this subject but the writer has known right along that this condition had existed. We have plenty of boys right here in Rochester who are on the Army Air Corps reserve and have from 400 to 500 hours in the air and are sitting here waiting for assignments.

It would seem to the writer that the CAA were doing a great government service for the Army in training pilots and the Army really called on them to do this work. However, after they became organized themselves they have divorced themselves from the CAA entirely and prefer to train their own pilots . . .

H. R. HARMAN
Harman Lumber Co.
Rochester, N. Y.

•

Dallas, Tex.

To the Editor:

With your editorial entitled "Unemployed Instructors" appearing in the February 1st *American Aviation*, you have struck home at a point that has been brewing inside of many male pilots for the last year.

We male pilots who are about to be drafted feel that the Army has done us a great injustice. The Army has taken women with 35 hours while men with 10 or 20 times that many hours will be in the walking army supporting families on one third of what these women pilots are making.

Furthermore to point out the Army way of doing things, it costs Uncle Sam $18,000 to train each of these WASPS and at the end of their training there is nothing to keep them from deciding that they don't want to fly and had rather go home to Mama. They do it every day.

Most men have spent several thousand dollars already on their flying education and what is more important is the Army Ferry Command could expect men to be in tip top shape and ready to fly 365 days out of the year.

The biggest trouble with us male pilots is that we do not have a shock of blonde locks and possibly red finger nail polish. In short, what I mean is someone sold someone a bill of goods.

L. E. GUILLOT.

•

Orangeburg, S. C.,

To the Editor:

May we take this occasion to express our appreciation for the excellent coverage in both *American Aviation* and *American Aviation Daily* of all matters pertaining to feeder pick-up service. We believe that numerous trips to Washington, involving considerable expense and loss of time, have been made unnecessary because of the adequacy of the information given and the promptness with which it has been dispatched. Entirely aside from our particular interest in the feeder pick-up news, all the Hawthorne organizations find both your bi-monthly and daily publications indispensable in the conduct of general aviation business.

JOSEPH J. MITCHENER, JR.,
General Manager,
Hawthorne Airways,
Orangeburg, S. C.

•

Chicago, Ill.

To the Editor:

Mr. Merrill C. Meigs, chairman of the Chicago Aero Commission, writes in your Jan. 15 issue suggestions as to what may be done at the Chicago Municipal Airport's administration and passenger station building to relieve the inadequate passenger seating and working conditions.

Mr. Meigs' past record speaks for itself in aviation, for he has always been alert to remedy conditions if at all humanly possible. The following suggestions are given with the spirit of cooperation for Mr. Meigs' Aero Commission and Chicago's city and airport officials who have contributed unselfishly toward aviation.

To gain more seats for passengers:

1. Remove the lounge type chairs and davenports and replace with wooden row benches, which is generally the accepted standard in passenger stations.

2. Close up the center aisle which is in the center of the present waiting room section, and use aisles on east and west side of waiting room only.

3. Cancel out the airport restaurant and use that space for passengers. (Prices are high. Furthermore, the restaurant has never won any prizes as a good eating establishmenit.) Several restaurants across the street from the administration building would suffice airline passengers.

4. Move out the CAA on the first and second floor. This organization need not be located in the administration building under conditions as they are in war time. If this were accomplished, this space could be utilized by USO as lounge space for service people, giving additional space for civilian passengers.

To gain additional office space:

1. Move out the Weather Bureau on the first floor, thereby giving the airlines additional counter space and offices to work in which would expedite departures and consequently save ramp space. The latter, ramp space, is already a serious situation.

Conditions are getting no better and should the airlines receive additional equipment in 1944, unless conditions are remedied, they may be forced to dispatch and receive in their hangars on the Chicago Municipal Airport until such time as the WPB permits materials for the construction of the new administration building. This may be two or three years from now.

Chicago Municipal Airport in 1943 handled approximately 750,000 passengers through its terminal. This figure does not include airline passenger visitors, those who meet arrivals or see passengers off. Nearly 100,000 parcels and baggage were checked in a space 20' x 20' during 1943! Chicago's position is unique in that it effects more interline connections than any terminal in the U. S.

Of major terminals in the U. S., Chicago is the hardest pressed for space. All that is needed is cooperation of CAA and the Weather Bureau in relocating their splendid organizations on the Chicago airport, terminate the restaurant as soon as the lease permits, and install wooden benches for the passengers.

A. H. A.

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Beverly Hills, Calif.,

To the Editor:

Your editorial suggestion that a more pleasing name than "feeder air line" be found for the type of air transport which is certain to be widely developed in the years immediately after war, meets with a great deal of approval here at Southwest Airways.

As one of the pioneer applicants for so-called "feeder routes," we have done much thinking on the subject of a better name. As we see it, it isn't just a matter of finding something more pleasing to the eye and ear. It also must be a truly descriptive title.

After all, feeding traffic to the transcontinental lines will be just one of three important functions of these air lines. In addition, they will carry passengers, mail and express from the outlying smaller towns to the large city which is the center of that particular trading area, and they will carry much intra-route and inter-route traffic.

Two statistics will prove very quickly the truthfulness of the claim there will be a great deal of "trading area" traffic. The Civil Aeronautics Board survey of passenger traffic for September, 1940, shows that 82% of all passengers originating in Fresno, Calif., traveled only as far as Los Angeles or San Francisco; 61% of the passengers originating in Big Spring, Texas, ended their trip in Fort Worth or Dallas.

No, "feeder" is not the right name for any air service which will perform this triple function. We prefer to call them "area airlines."

The more we say it, the better we like it. What do you think of the name?

PAUL G. STURGES,
Director of Public Relations,
Southwest Airways Company

Obituaries

William B. Mayo

William B. Mayo, former chief engineer of Ford Motor Co., and administrator of the first Ford aviation interests, died January 31, of a heart attack. He was seventy-eight years old.

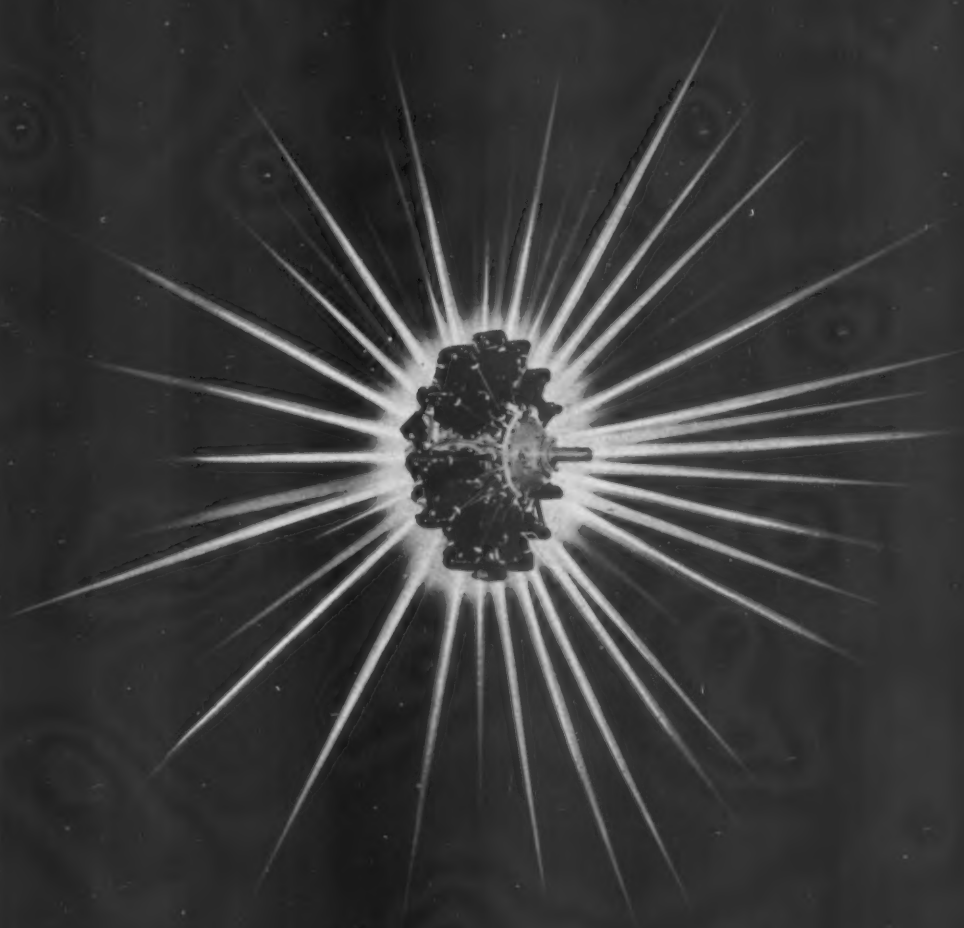
In 1920, he went to Europe to study the aircraft industry and on his return reported to Mr. Ford that he believed establishment of an aircraft industry in Detroit would be a commercial success. When in 1925, Ford bought out the stock of the Stout Metal Airplane Co., which eventually became the Ford Motor Company's aviation division, Mr. Mayo was placed in charge as a vice president of the parent company.

He was president of the Detroit Aviation Society when in 1927 it sponsored Captain George Hubert Wilkins' North Pole flying expedition. He helped organize Sky View Lines, Inc., in 1928 as a sightseeing air route over Niagara Falls and the International Air Express from Brownsville, Texas to Detroit. He was president of the National Glider Association when it first sponsored the national glider contests.

Later, Mr. Mayo worked with Elmer Sperry in the development of the automatic gyroscope pilot. Following his retirement from the Ford Motor Company, he served for a time as president of United Aircraft Corp. Later he became a governor of the National Aeronautical Association and a director of TWA.

Herbert Mayer

Herbert Mayer, president of the Reliance Manufacturing Company, died at the age of 49. He had been ill a year. He joined the Reliance organization as a director twenty years ago and was made president in 1930. During the present war, he made his firm one of the country's largest manufacturers of parachutes.



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Engines

POTTSTOWN, PENNSYLVANIA, U. S. A.

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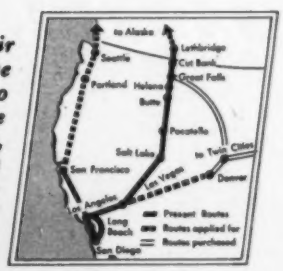
YOUR CABIN IN THE SKY

Your cabin on tomorrow's long-distance airliner may well be a private "roomette," snugly adaptable for dining, sleeping or living room comfort... in completely relaxed privacy. Inside the plane the air will remain constantly at ground-level pressure... for comfort... while climbing and descending... or while you travel through the high thin atmosphere. You'll enjoy all the coziness of your own home—including hot meals, cold drinks, radio (or television)... at fares below today's cost of ground travel.

Plans for Tomorrow's Western Air Lines service include applications to the Civil Aeronautics Board for routes to Alaska and to Buenos Aires and Rio de Janeiro by way of Mexico. If approved, this would provide service on a great North and South American air route ... through this city.



WESTERN AIR LINES

America's Pioneer Airline

General Traffic Offices: 510 West 6th Street, Los Angeles 14, California

WITH GENERAL CHENNAULT. By Robert B. Hotz. Coward-McCann, Inc., New York. 270 pp. $3.00.

A fine portrait of Chennault, the man, is sandwiched into this detailed narration of the activities of the Flying Tigers. You see a broad chest, a strong square face with determined jaw, a mouth at once soft and easy in a friendly grin then tightened like a steel trap. You see the typical crow's-foot wrinkles of the old-time open-cockpit pilot at the outer corners of his eyes. You see the inevitable white silk scarf.

This book will tell many readers for the first time that Chennault was 29 years old and the father of four children when he took his first airplane ride. Yet he became one of the hottest pursuit pilots in the Air Corps and one of the best tactical leaders to see action in World War II. Author Hotz, a peactime foreign correspondent turned AAF pilot, rightfully gives the General full credit for conceiving the idea of an American Volunteer Group in China. He leaves no doubt that Chennault's tactics and inspired leadership fashioned a tiny, untried patchwork air force into one of the most invincible flying units of the war.

The book supplements with fine details newspaper accounts of the battles of the "Adam and Eve," "Panda Bear" and "Hells Angels" squadrons over China and Burma. It recreates such epic air victories as those over Kunming and Rangoon.

An excellent reason for buying "With General Chennault" is the fact that all royalties from the book are being given to the A. V. G. Memorial Fund.

SUMMARY OF U. S. CIVIL AIR REGULATIONS. By George Sidney Stanton. 50 pp. Mayday Flight Co., Kansas City, Mo.

This is the fourth edition of the Mayday company's summary of civil air regulations, abridged and simplified for student, private, commercial and military pilots. Material was taken from the official U. S. Civil Air Regulations and from the recommended procedures of the Civil Aeronautics Administration. It contains all the information necessary for CAA examinations in this subject, as well as additional material of value to pilots and owners of aircraft.

THE GRIM REAPERS, by Stanley Johnston. 221 pp. E. P. Dutton & Co. $2.75. Photographs.

The author of "Queen of the Flat-Tops" has scored another success in writing this action book of adventures in flying tactics with a deadly Japanese foe during the Guadalcanal, Midway and other Pacific battles. Johnston recorded the behavior of the Reapers as they reacted to decisive moments of combat. The Reapers were members of Fighter Squadron VF-10, which was assigned to U. S. S. Enterprise under Lt. Cmdr. James H. Flatley, a "dynamo" who pulled them through their toughest spots. The book spares little in illustrating the great mental, spiritual and physical resistance of U. S. pilots.

E. B. H.

AIR NAVIGATION, by Herbert S. Zim. Harcourt, Brace & Co., New York. 304 pages. $3.00.

Illustrated with 50 drawings, maps and diagrams and 40 photographs, this book covers the entire field of air navigation. Throughout, the author attempts to explain complicated subjects in terms understandable to the layman.

Included are chapters on instruments and methods, using maps, the compass, plotting the course, the atmosphere, weather, instruments of avigation, gyroscopic instruments, radio navigation, radio compass, celestial navigation. The final chapter tells what boys can do even before they reach high school to prepare for a career in aviation.

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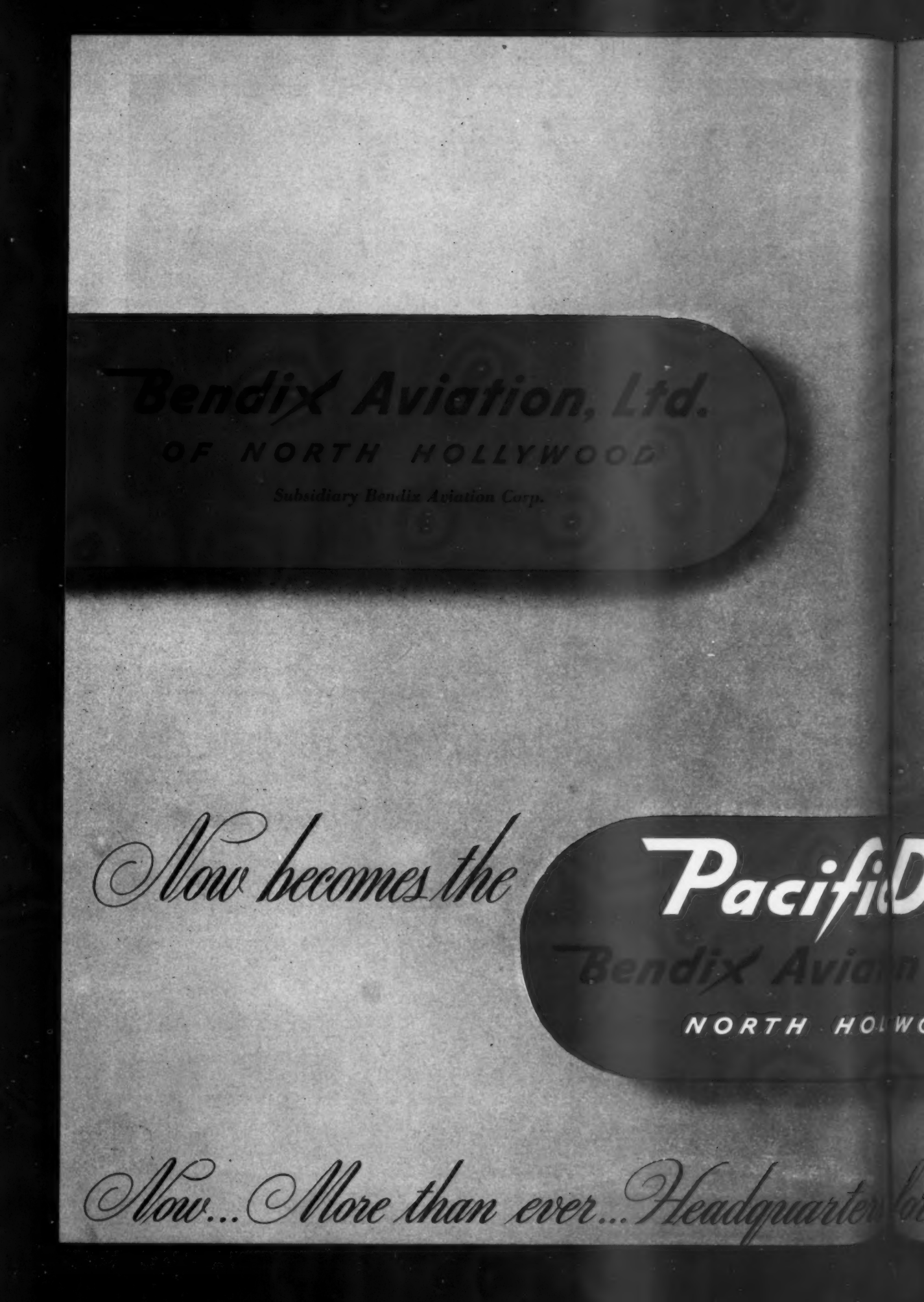
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THE NAME of Bendix Aviation, Ltd., North Hollywood, has been changed to Pacific Division of Bendix Aviation Corporation. Formerly a subsidiary of Bendix Aviation Corporation, the organization now becomes a division of the corporation. The entire operation and personnel of Bendix Aviation, Ltd., remain unchanged. As one of the Bendix plants that is building the Invisible Crew, the same organization will continue to manufacture and sell its famous line of radio and hydraulic accessories.

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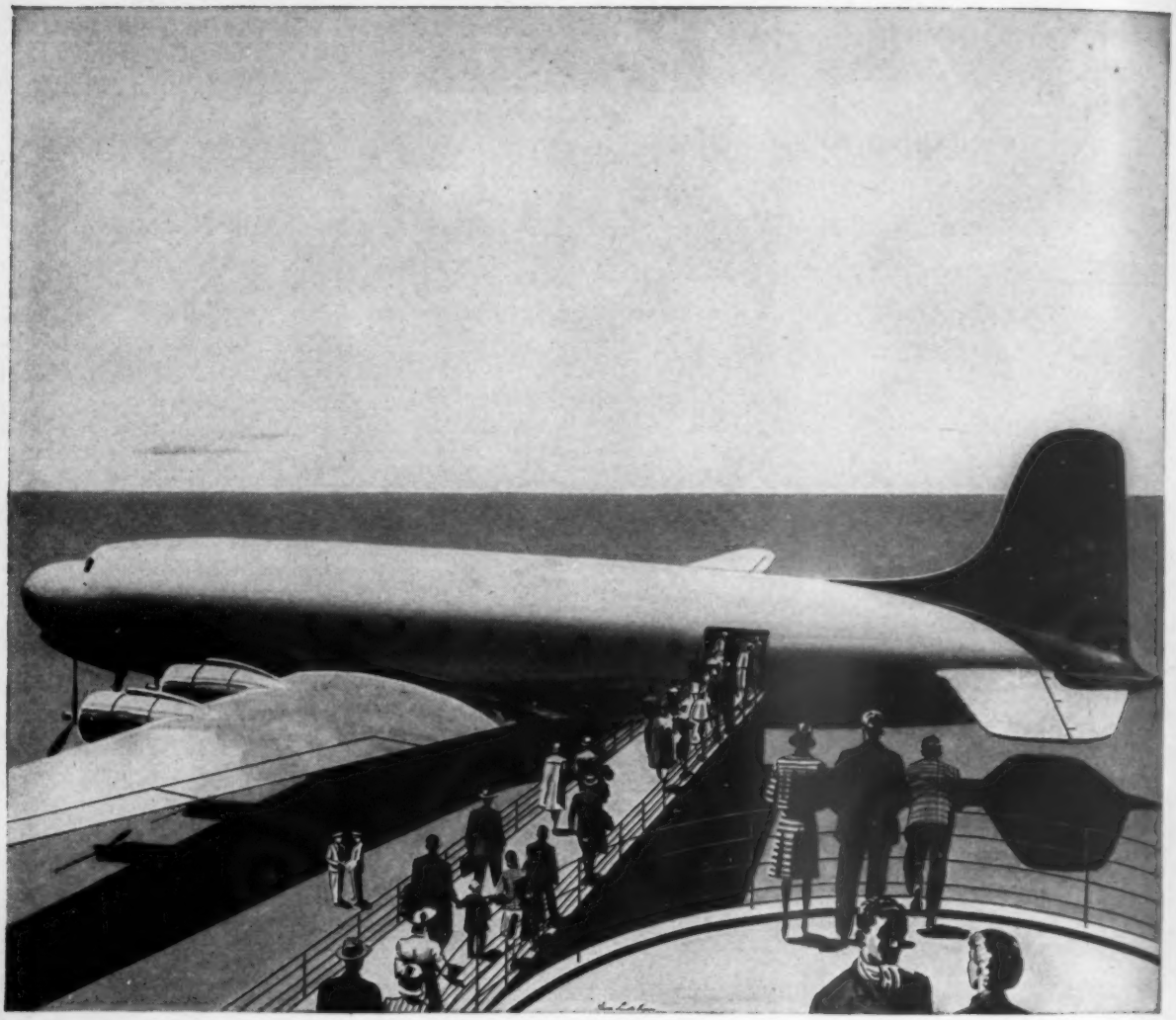

"All aboard" in the *Age of Flight*

"All aboard! United Mainliner, 'The Continental,' for Chicago, Denver, and the Pacific Coast. Connections for Honolulu, Manila, Singapore, Mandalay, Calcutta and Bombay."

ROMANTIC, far-away places that once took weeks and months to reach . . . cities so remote that only occasional travelers ever visited them . . . will be regular stopping places on the world-wide airline networks of the future.

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You will probably visit these places in the Age of Flight, and so will many of your fellow countrymen. You will be able to travel because travel itself will take so little time, and all kinds of transportation will be so vastly improved.

This will be particularly true of travel in the United States. Service on United's Main Line Airway, for example, will be so frequent and so convenient that you will be able to fly to any city across the country in a few hours, practically any time of day or night. No section of the nation will be more than 11 hours from wherever you may happen to be. And air travel will be more economical, too.

This glorious day of aviation cannot begin until Victory is won. When the Axis is finally defeated, United, the nation's pioneer air transport system, will utilize its background of experience, resources and leadership to provide even faster and finer air service. You and many more will take to the skies as never before.

All will be aboard in the Age of Flight!

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UNITED AIR LINES

THE MAIN LINE AIRWAY

Vol. 7 No. 18
Feb. 15, 1944

American Aviation

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This Issue

Establishment of Feeder Lines Favored

CAB Examiners Urge Economically Sound System With 25c Maximum Mail Pay

By Gerard B. Dobben

ESTABLISHMENT of a sound economic feeder type of airline service, even at the expense of limiting the expansion of existing carriers, is one of the more important recommendations contained in a highly important report announced last week on the Local-Feeder-Pickup investigation. The report, prepared by CAB Examiners William J. Madden and Albert F. Beitel, is expected to be widely debated in aviation circles.

Because of the nature of some of the conclusions and recommendations, the report may become one of the most controversial documents that has been submitted in recent CAB history. This is considered but natural because of the wide variance of interests involved.

The report must not be considered as the official opinion of the Board. It was explained that no member of the Board saw the report prior to its release to the public. The examiners invited comments to be submitted within 20 days to the Docket section of CAB.

Out of the examiners conclusions and recommendations and from the suggestions and criticisms which will come from the interested parties, the Board is expected to form a policy with reference to the future development of domestic aviation.

The report of Examiners Madden and Beitel is based on the evidence introduced during public hearings which were held from Sept. 28 to Oct. 25. They made 11 specific recommendations as follows:

11 Recommendations

1. Air transportation should be expanded to small cities in part by the addition of points to existing routes and in part by the authorization of services to be rendered by new carriers committed and delegated to effecting substantial economics of operation in the manner hereinbefore outlined.

2. A classification of such carriers should be established and designated as feeder air carriers.

3. Authorization of service by feeder air carriers should be based upon a showing that economies of operation will be incorporated into the services.

4. To further assure the operation of routes by feeder air carriers on an economical basis a maximum rate of compensation for the transportation of mail should be fixed and determined in the amount of 25 cents per mile.

5. Appropriate limitations relating to non-stop and skip-stop schedules, designed to maintain proper balance between operations by feeder carriers, and other carriers, should be prescribed in the authorization of each feeder service.

6. Limitations should be imposed upon the expansion of air services by presently operating carriers in order to allow a field of operation for feeder services. As a criterion in the accomplishment of such limitations, extensions by presently operating air carriers should be limited to cities having metropolitan populations of 25,000 or greater except upon a showing that such extensions will not adversely affect the operation of feeder services in the same general area.

7. Authorization of air services by surface carriers should be rigidly confined to the operation of aircraft in services which are only auxiliary, supplemental or incidental to the surface transportation facilities.

8. No general expansion of air services incorporating only pickup operations should be authorized except in unusual cases where the needs of the Postal Service may require such an operation. Expansion of pickup operations should be generally authorized only where a combination pickup and passenger service will be operated and developed.

9. Safety regulations for feeder service should permit the carrying of passengers on planes which also render pickup service; the provision of service with single engine aircraft; and the operation of aircraft with a single pilot.

10. Applications for certificates authorizing feeder services should be heard together with applications for other services within the same general geographic area in a consolidated proceeding.

11. Hearings upon applications for authorization of air transportation service, which are based essentially on the use of helicopters, should be deferred until such time as commercial helicopters are available.

Compromise Seen

These recommendations appear as somewhat of a compromise between the two extreme schools of thought in aviation circles. They probably will not satisfy the enthusiastic aviation prophets who believe the airplane is destined to dominate completely the first class passenger field and at the same time make heavy inroads into the cargo and freight carrying business. On the other hand, the recommendations may appear overly optimistic and highly impractical to hard-headed business men who have suffered all of the growing pains of a young industry and who feel that the airplane may never, at least for years to come, successfully compete against old established forms of surface transportation, especially in the short-haul passenger and cargo field.

The examiners give little encouragement to the hopes of the bus and truck operators. They believe the Civil Aeronautics Act unmistakably shows that Congress intended the various forms of transportation should be mutually independent of each other. They cite many Board opinions in which this principle is clearly enunciated. They believe new legislation would be required to permit the bus or rail company to enter the aviation field other than in operations purely complementary in nature. Some of the bus companies, particularly Greyhound Corp. of Chicago, have plans for extensive use of the helicopter in an integrated air service. The examiners deal another blow to this type of operation by recommending that no hearings be held on this type of application until helicopters are commercially available.

Arguments Expected

Existing transport carriers, most of whom have filed extensive applications for entering the local transport field, probably will take issue with several of the recommendations. The suggested limitation which would bar existing carriers from extending their service to towns under 25,000 so that this class of service could be left to the so-called "Feeder" type operation, will seriously affect the expansion plans of some of the regional carriers, many of whom now serve a considerable number of cities with a much smaller population. The examiners, however, use the traffic generating experience of the carriers who operate into these smaller towns as the basis for this recommendation.

This recommendation, however, does have a certain elasticity. Where the showing so justifies, carriers would be permitted to serve the smaller points on non-stop and skip-stop operations. This would give these towns some direct through service while a new operator

(Turn to page 36)

Cautious on Helicopters

While taking into account the progress that has been made, Examiners William J. Madden and Albert F. Beitel contend that the helicopter is still in the development stage and not so imminent that plans for expanding air transportation service should be altered.

"When the helicopter becomes available it will be used on services now or hereafter authorized in the manner best suited to its inherent characteristics," their report contended.

For these reasons, the examiners recommended that hearings involving essentially the use of helicopters should be deferred until such time as they are commercially available.

Surplus Materials New Industry Problem

Aircraft Plants Seek Immediate Outlet for Vast Piles of Excess Aluminum, Steel

By CLIFFORD GUEST

LOADED up with millions of dollars worth of surplus materials—particularly aluminum and alloy steel—for which they can find no use in the improved types of planes now being turned out, aircraft manufacturers are urgently seeking government approval of a program whereby they can release these excesses into the civilian market.

In contrast to the material-shortage situation which existed a few months ago, unusable surplus lists have piled up in many factories as a result of changing schedules, and the industry feels that if these surpluses are not disposed of now they will become virtually a total waste, or at best will create a chaotic condition in the materials market later on.

The urgency of the situation was realized when one West Coast aircraft company recently took inventory and found that it had several million dollars tied up in surpluses it could not use—a figure times greater than its capital reserve.

Several specific plans for disposal of these surpluses have been submitted by the industry to the Production Executive Committee of the War Production Board where officials are now giving the problem intensive consideration. The industry's prime objective is to obtain authorization for disposal of material surpluses with a minimum of red tape and with the least impact on the national economy, and at the same time without interference with the war production program.

The Aircraft War Production Councils have had Henry Nelson, their material coordinator, at work on the problem for several months. Plans have now been presented to all key officials in WPB and the military organizations concerned.

Several Proposals

Of the several proposals which have been advanced, those considered to have the best chance of being approved include:

1. The aircraft industry has proposed that all limitation and conservation orders of WPB be abrogated as they refer to materials acquired from surpluses, after having been offered to war programs through proper listing.

The chief objection to this proposal is the fear that manpower might be diverted from war production to less essential civilian production. There is also a danger of an adverse psychological effect on the home front morale if such a step were taken at this time.

2. A modification of the above proposal, which would free restrictions on sale and use of any materials or parts which can be used without further fabrication, is also receiving consideration.

This proposal has a good chance of being approved, as it would free a portion of the surplus without danger of manpower diversion. It is probable that restrictions concerning the addition of critical components to material or parts acquired for presently prohibited uses, would be imposed if this proposal is accepted. This would tend to restrict the potential market for such material.

3. It is proposed that Army and Navy procurement regulations and instructions to contracting officers be changed to permit sale of surplus materials to the material producers as scrap.

This is being given serious consideration, particularly as it applies to aluminum products. Many advantages are to be realized if this program is approved. It would provide an immediate market for surplus aluminum products, and enable the aircraft companies to clear their plants of these excesses. If this is done under present operating conditions, any losses sustained through such transactions can be absorbed without much net loss because of the present tax structure.

4. It is proposed that an experimental program be approved whereby small plants in areas where manpower is not considered critical could acquire surplus materials for use in civilian type production without regard to limitation and conservation orders.

Details of this plan have been worked out by WPB and the Smaller War Plants Corp., and it is expected to be approved on a small scale soon. If successful, it is felt the experiment could be extended without much difficulty. The benefits would depend on the scope of its operation.

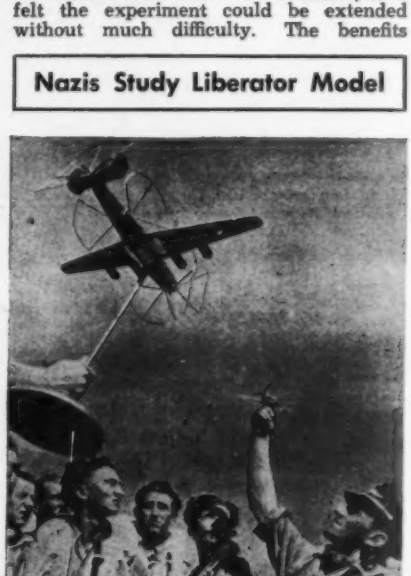
WPB and military executives with whom these proposals have been discussed include Charles E. Wilson, as head of the Production Executive Committee, J. A. Krug, A. H. Bunker, Col. C. R. Baxter, Col. F. E. Coyne, Maj. Gen. Lucien Clay, Maj. Gen. O. P. Echols, Lt. Gen. William S. Knudsen, Brig. Gen. F. Hopkins and Rear Admiral E. M. Pace.

"Timing of the answer to the surplus problem is almost as important as the solution itself," Henry Nelson declared in discussing the proposals from the standpoint of the AWPC. "The time has not come for a *prompt* announcement of policy decisions, with necessary regulations and instructions to implement such policies promptly and courageously.

"As surplus capacity to produce materials continues to be available, pressure will increase to make such new materials available to civilian production. Pressure will come from a civilian economy starved of such items as have become semi-necessities; from labor groups affected by production reductions; and from materials producers who have certain obligations to keep their equipment operating at an efficient level.

"When such pressure reaches a degree when the inevitable decision is made to permit a certain amount of resumption of civilian production from new materials, the market for surplus materials will practically disappear. Therefore, it is imperative that if markets are to be protected; if it is desirable to prevent the chaos of vast quantities of surplus materials on an easy material situation; and if the least impact on the national economy is to be realized, that announcement be made *now* of the policies to be followed in the disposition of surpluses."

Nazis Study Liberator Model



International News Photo

A group of fledgling Nazis are shown receiving instruction in how to tangle with a Liberator bomber. Wires sticking from the model indicate fields of fire of the Liberator's guns. This photograph reached the United States through neutral sources.

Engineer-Executives Propose Program for Postwar Development

Engineering executives, representing the U. S. aircraft industry, have adopted a vigorous program designed to promote postwar and private flying on a sound technical basis.

The program was the result of a two day conference of the Airplane Technical Committee of the Aeronautical Chamber of Commerce, last fortnight in St. Louis.

The high lights of the conference were:

1. Establishment of an "Air Worthiness Requirements Committee" to develop efficient design standards for private and for aircraft type airplanes.

2. Passage of resolutions for simplification of government approval of airplane designs.

3. Endorsement of U. S. participation in discussion with foreign countries leading to the establishment of uniform, basic safety standards for aircraft.

4. The committee characterized the current military operations of aircraft as providing the "greatest aeronautical research laboratory in the history of the world". Emphasis was placed upon the necessity for obtaining statistical data from this "laboratory" as a basis for improving the efficiency of both civil and military aircraft.

Braniff Acquires Mexican Routes Covering 2,600 Miles

Will Be Second Largest Airline Serving Mexico

BRANIFF AIRWAYS' plans for a major expansion into Mexico were revealed last fortnight with announcement that T. E. Braniff, president of the company, has been granted an operating permit by the Mexican government covering 2,643 miles of air routes.

The plan was revealed in Washington by Charles E. Beard, Braniff vice-president, who testified at a CAB hearing involving the application of American Airlines for a temporary stop at San Antonio on its route to Mexico City. Braniff Airways appeared in the case as an intervenor.

The Mexican permits have been granted to a new Mexican corporation known as Aerovias Braniff, S. A. Braniff will be the fourth U. S. company to operate in Mexico or participate in operation of Mexican airlines, the others including Pan American Airways, American, and United (which recently acquired control of LAMSA).

The routes granted provide for airline service between Nuevo Laredo and Mexico City via Ciudad Victoria; between Matamoros and Tampico via Ciudad Victoria; between Mexico City and Tapachula via Cuernavaca, Cuautla and Salina Cruz; between Mexico City and Merida, Yucatan, via Puebla and Vera Cruz; and between Matamoros and Merida, on a direct trans-gulf flight.

To Transfer Ownership

Aerovias Braniff, S. A., Beard stated is a Mexican corporation which is controlled by T. E. Braniff. Subject to approval by the Civil Aeronautics Board, it is intended that after the initial organization and development period, ownership of Aerovias Braniff will be transferred to Braniff Airways. In making the announcement, it was pointed out that ownership of the corporation by T. E. Braniff was merely an interim step between the granting of the franchise by the Mexican Government and approval by the Civil Aeronautics Board in accordance with the United States laws which govern.

Braniff Airways' present domestic service comprises 3,108 route miles between Chicago in the Great Lakes region and Denver in the Rocky Mountain region through the central West and Southwest to both the Laredo-Nuevo Laredo and the Brownsville-Matamoros gateways which are the northern termini of the 2,600 miles of Mexican routes of Aerovias Braniff.

In speaking of the organization of the new company and the certificates which had been granted to it by the Mexican Government Beard said, "We have acquired a good deal of experience in Mexican operations. In 1935 we commenced serving international air travelers through the Brownsville gateway and we have continuously handled international traffic through that gateway. Since 1936 we have maintained offices and personnel in Mexico City. On Sept. 1, 1943, we inaugurated additional service for international air travelers through the Laredo-Nuevo Laredo gateway under the terms of an amendment to our certificate of public convenience and necessity granted by the Civil Aeronautics Board on Dec. 29, 1942.

"The route mileage granted to Aerovias Braniff makes it the largest airline in Mexico next to the operations of Pan American Airways and its Mexican subsidiaries. Our organization of the Mexican company indicates our conception of the importance of Mexico in the postwar world. It is in conformance with the expressed wishes of the Mexican Government to develop a strong airline within Mexico serving Mexican nationals, connecting important Mexico metropolises and flying the Mexican flag.

"The service proposed will not only provide international service through two of the most important air gateways between Mexico and the United States but it will also render service to important Mexican cities not now served by any air company. Service will be provided with Douglas DC-3 aircraft or comparable multimotored equipment and the standards of service in all respects will be comparable with the standards of service on domestic United States airlines.

"Aerovias Braniff will be domiciled in Mexico, staffed and operated by Mexican personnel. Training will be carried out in cooperation with pilot training schools operated by the Mexican Government and other Mexican educational institutions.

"The routes served contain tremendous potential industrial and recreational possibilities. It is our intention to operate a frequency of schedules and perform a service which will render tangible, effective assistance in these developments. Their development is vital to the postwar economy of both Mexico and the United States.

"Obviously, details of operations have not yet been determined, but our plans provide for substantial attention to the development and handling of air cargo in Mexico. The railroad and highway developments there are not yet as extensive as those in the United States, and consequently there remain many areas which will be served by Aerovias Braniff which completely lack ground transportation or in which it is not adequate.

"Plans and preparations are going forward and service will be inaugurated as soon as suitable equipment is available."

Aviation Calendar

Feb. 18-19—Middlewest airport managers' conference, Hotel Anthony, Fort Wayne, Ind.

March 25 to April 1—First annual Northwest Aviation Exposition, Minneapolis Municipal Auditorium, sponsored by Greater Twin Cities Chapter of NAA.

Apr. 7-8-9—Southwest Aircraft and Accessories Exposition, Mustang Airport, Dallas, Tex.

Apr. 27—National Light Aircraft Meeting, Institute of Aeronautical Sciences, Detroit, Mich.

April—Engine and Accessory Production Meeting, Institute of Aeronautical Sciences, Detroit, Mich.

July—Design and Postwar Planning Meeting, Institute of Aeronautical Sciences, Los Angeles.

October—Air Transport Meeting, Institute of Aeronautical Sciences, Washington, D. C.

Nov. 11-15—Second National Aviation Planning Clinic, Oklahoma City.

B-29 Data Disclosed In British Magazine

Purporting to be information taken from American press accounts, the British publication "Flight" in its December 30th issue, widely circulated in the United States, disclosed details concerning the B-29 which previously had been marked "restricted" by the Army Air Forces.

"There is no doubt," Flight said "that this new four-engined aircraft will mark a real achievement in American aircraft progress. With its bomb load of 16,500 pounds to 17,500 pounds on a 1,000 miles' range, or 6,000 pounds on a 3,000 miles range, the B-29 is far superior to Fortress types at present in service. . . . The B-29 retains the general features of the Fortress and is fitted with a tricycle undercarriage, all undercarriage wheels having double tyres. . . . The span of the aircraft is 141 ft., length 99 ft., and the wing area 1,739 sq. ft. Powered with four Wright Cyclone Duplex engines of 2,000hp each driving a three-bladed airscrew, the B-29 has a cruising speed of approximately 250mph at 25,000 ft.

"Heavily armoured, the aircraft carries a considerable armament, comprising a chin turret, as on the B.17G, dorsal, ball and tail turrets, and barbettes on each side of the fuselage operated by remote control. It will be recalled that the B.17G has chin, dorsal, ball and tail turrets and nose and waist gun positions, all equipped with 0.5 calibre guns. It is possible that the armament of the B29 will include cannon.

"The all-up weight of the new bomber is between 100,000 and 120,000 pounds, presumably varying with equipment, as compared with the 60,000 pounds of the Fortress or the Lancaster."

Plane Kept Secret 3 Years

The British bomber-reconnaissance plane, Albermarle, was unveiled to the public January 27, more than three years after it first went into production. The twin-engined midwing monoplane has been on the secret list longer than any other British aircraft, it was reported. The plane has a maximum speed of more than 250 mph. at 10,500 feet, and a range of more than 1,300 miles. Its armored cabin carries a crew of five.

Extension of CPT Act Urged; Army Cuts Civilian Schools

14 Primary Schools, 70 Colleges and Contractors Dropped

By BARBARA B. C. MCNAMEE

AS THE Army Air Forces slashed again the ranks of its civilian contract flying schools, representatives of schools, colleges, trade associations and the Department of Commerce testified before a subcommittee of the Senate Commerce Committee that the extension of the Civilian Pilot Training Act was essential to the future of civil aviation.

Without forewarning, 70 colleges and civilian flight contractors of War Training Service were released from the flight indoctrination course for AAF aviation cadets on January 31. The same day contracts with 14 civilian Primary schools were cancelled to adapt the program to the lowered quotas of men being accepted for flight training by the AAF.

Students now in training at these colleges and schools will complete their courses but in the future no new students will be alloted them for training.

Discusses With Army

Senator McCarran (D., Nev.) indicated at the hearing on extension of CPT that he was discussing these cancellations of civilian pilot training contracts with Army officials. "They are adamant in their position, however," he remarked. Army, Navy and Bureau of the Budget have reported their opposition to continuation of civilian pilot training.

R. McLean Stewart, executive director of training, CAA, said he had no indication that the Army would cancel its contracts with the 82 schools still performing indoctrination work. If the Army Air Forces wished to continue the 82 flight indoctrination schools after June 30, it is expected they would be advocating the extension of the authorization of CPT (S 1432) which limits the duration of the program to June 30, 1944.

Already terminated was the Army Instructor Course for which War Training Service had contracts with 54 colleges and 59 flight contractors. Navy WTS constractors have been warned to expect cancellation any time before June 30.

The Army Air Forces' explanation of this latest curtailment was that its training "was of necessity established on a flow chart basis whereby trainees travel every month from basic training centers to colleges and from colleges to pre-flight schools. Consequently the overall policy of elimination of institutions adopted by the Training Command has been based on the principle of relieving an excessive and unnecessary burden on the national railway system and at the same time effecting a large saving of travel funds and military manhours in transit. Institutions were also eliminated on the basis of geographical location and suitability to the specific needs of the Training Command."

Quotas for the 82 colleges and flight schools remaining in the flight indoctrination program will be slightly enlarged, according to Army spokesmen, who said the curtailment had been very difficult due to the uniformly excellent performance of the colleges and schools. It is believed that geographical location was used as a principal yardstick in measuring the qualifications of schools to remain in the program.

Army Air Forces officials have not as yet indicated any definite plans for the future assignment of the instructors and mechanics released by the shut-down of War Training Service schools. The 900 instructors engaged in training new instructors for WTS have an average age of 31 years, average experience of 2,142 flying hours and little prospect of flying jobs in the immediate future.

60% Promised Jobs

About 60% of the Primary school instructors who are being released, however, have been promised flying jobs. All those who have 1,000 hours or more may qualify for flight service with the Air Transport Command. The remainder of the 1,300 instructors employed by the terminated schools will probably be offered non-flying jobs in the Army Air Forces or the opportunity to accept jobs in war industries.

At the recent Senate hearings Sen. Pat McCarran announced his determination to have his bill (S. 1432) extending the Civilian Pilot Training Act enacted before CPT's present authorization expires. Rep. Lyle Boren (D. Okla.), member of the House Interstate and Foreign Commerce Committee, reported that he is making every effort to get favorable action on the House companian bill (HR 4079).

R. McLean Stewart recommended a three-point program for the continuation of CAA's pilot training: Utilization of the civilian schools during war time by the Armed Forces, civilian pilot training for high school students and a college pilot training course to be resumed after the War. Other suggestions included use of the schools for training women as pilots.

Chief reasons given at the hearings for the advisability of maintaining the program during wartime were that dispersal of the physical equipment at the colleges and airports and of the trained faculty and instructors would be uneconomical and a serious set-back to postwar civilian aviation.

In a recent speech at Oklahoma City, Stewart declared, "The proper field of activity for civilian training organizations during the remainder of the war would seem to lie in the provision of flight instruction in its initial or elementary stages. Civil aviation has been remarkably successful in the work of 'air-conditioning' or indoctrinating aviation students in the art of flying. Such a program would serve the important purpose of maintaining a nucleus of civilian training centers in operation in conjunction with the colleges. These centers would be in a position to go forward immediately with flight training under other arrangements when the large scale training programs under the National Selective Service Act come to a close."

The following schools have been eliminated from the several Army Air Force flight training programs.

AAF Contract Primary Training

Wiggins-Marden Aero Corp., Camden, Ark.
Cape Institute of Aeronautics, Inc., Cape Girardeau, Mo.
Parks Air College Inc., East St. Louis, Ill.
Pacific Air School, Ltd., Ft. Stockton, Tex.
Texas Aviation School, Hicks Field, Ft. Worth, Tex.
Mississippi Institute of Aeronautics, Jackson, Miss.
Lafayette School of Aeronautics, Lafayette, La.
Anderson Air Activities, McBride, Miss.
Spartan Aircraft Co., Muskogee, Okla.
Oklahoma Air College, Oklahoma City, Okla.
Twenty-Nine Palms Air Academy, Twenty-Nine Palms, Cal.
Riddle-McKay Company of Texas, Union City, Tenn.
Claiborne Flight Academy, Wickenburg, Ariz.

AAF-WTS Flight Instructor Training

American Aircraft Co., Grand Rapids, Mich.
Aviation Credit Corp. Training Division, Kirksville, Mo.
Branstetter-Hughes Flying Service, Lovelock, Nev.
Buroker-Hicks Flying Service, Coeur d'Alene, Idaho
Calkins Aircraft Co., Spokane, Wash.
Cape Aircraft, Inc., Glen Falls, N. Y.
Central Flying Service, Little Rock, Ark.
Chaffey Junior College, Baker, Cal.
T. Carson Chalk, Adel, Ga.
Coffey School of Aeronautics, Oaklawn, Ill.
Coffeyville Airways Corp., Coffeyville, Kans.
Dakota Aviation Co., Huron, S. D.
Dallas Aviation School, Dallas, Tex.
Dickerhoof Flying Service, Chanute, Kans.
Elkins Flying Service, Erie, Pa.
Eddie Fisher Flying Service, Edwardsville, Kans.
Fontana School of Aero., Rochester, Minn.
Lou Foote Flying Service, Lancaster, Tex.
Genesee Airport, Inc., Rochester, N. Y.
Graham Aviation Flying Schools, Inc., Meadville, Pa.
Greenwood Flying Service, Greenwood, Miss.
Harrington Air Service, Inc., Mansfield, Ohio
Hinck Flying Service, Inc., Minneapolis, Minn.
Holderman Flying Service, Rochester, N. Y.
Hylan Flying Service, Rochester, N. Y.
Iowa Airplane Co., Inc., Des Moines, Iowa
Kansas City Flying Service, Kansas City, Kans.
Kurtzer Flying Service, Yakima, Washington
Lynchburg Air Transport & Sales Corp., Lynchburg, Va.
Marsh & Franklin, Minden, Nevada
Niederhauser Airways, Marshalltown, Iowa
North Aviation Co., Northport, Minn.
Northeast Airlines, Inc., Burlington, Vt.
Northeast Jr. College of L.S.U., Monroe, La.
Olympia Air Transport Corp., Sunnyside, Wash.
Owensboro Aviation Co., Owensboro, Ky.
Page Airways, Inc., Rochester, N. Y.
Parkersburg Flying Service & Air School, Parkersburg, W. Va.
Pathfinder Flying Service, Carson City, Nev.
Piedmont Aviation, Inc., Winston-Salem, N. C.

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Save the Surface

The Army Air Forces Air Service Command will plant tons of American grass seed in Italy as a measure for controlling volcanic dust which is proving injurious to aircraft engines, the War Department announced. The first ton of the 50 ordered was delivered overseas by air transport and subsequent shipments, along with four grain sowers to expedite the seeding, have been sent by cargo vessel.

Action on Lea Bill Delayed; McCarran Drafts New Act

Senate Bill May Include Internat'l Aviation Board

By KATHERINE E. JOHNSEN

WITH Rules Committee's "Indefinite postponement" of action on the Lea bill, aviation interest switched during the fortnight to the Senate side of Capitol Hill where Sen. Pat McCarran (D., Nev.) prepared to drop his "super" aviation bill in the hopper.

Although previous "indefinite postponements" of action on the Lea measure by Rules Committee have been broken by pressure from Interstate and Foreign Commerce Committeemen, last fortnight's "indefinite postponement" had all the implications of a real burial, some sources believed. Rules said definitely that there would be no further open hearings. The bill's sponsors, Reps. Clarence F. Lea (D., Calif.) and Alfred Bulwinkle (D., N. C.) dropped their determined push to get the measure to the House floor, sat back, awaited a definite "yes" or "no" from Rules Committee, and admitted that "perhaps" the odds were against them. The possibility does remain that Rules Chairman Sabath (D., Ill.) at some future executive session of his Committee will ask for a vote on a rule—and, maybe send the bill to the floor.

In the meantime, however, aviation circles in Washington focused attention on the coming McCarran bill.

Highlighting this interest was the likelihood that the bill will contain provisions stripping the Civil Aeronautics Board of its authority over foreign aviation.

Consider Change

The first hint that such a move was contemplated was dropped to *American Aviation* by Sen. Bennett C. Clark (D., Mo.), chairman of the aviation subcommittee of Senate Commerce Committee, when he reported that his group "was considering a change in present machinery for handling foreign aviation . . . as well as all other aspects of postwar air policy."

McCarran added light to Clark's remark when he revealed that he is "giving very serious consideration" to including provisions in his bill for the establishment of an "International Air Board" which would have jurisdiction over foreign aviation, leaving the present Board with jurisdiction over the domestic field only.

Aviation spokesmen, aware of the fact that Senate Commerce Committeemen have tied the CAB's hands as far as foreign route applications are concerned, predicted that the Board will be called upon before the present Congress adjourns to wage a major defensive fight if it is to retain its present status.

McCarran's displeasure with CAB policy is well known. In 1941 he raised strenuous objection to the Board's practice of granting certificates for domestic operations only to "grandfather carriers" and keeping newcomers from the airline field. He has openly challenged CAB's authority to act on foreign route applications and thus inadvertently establish the air policy of the U. S.—for example, whether the U. S. is to operate a "chosen instrument" or adopt a policy of competition among carriers for foreign routes.

Clark, who has been given public assurance by Secretary of State Cordell Hull that no move would be taken to establish the U. S.'s foreign air policy without the approval of his subcommittee, remarked to *American Aviation* that the CAB "has authority under existing law to grant foreign route certificates" to whatever carriers it sees fit, but significantly added: "I do not believe that the Board is disposed" to take any steps tantamount to establishing air policy.

Bill's Provisions

McCarran's bill had not been drafted as this issue went to press. However, *American Aviation* offers the following facts concerning it:

(1) The bill will provide for the re-establishment of the Civil Aeronautics Authority as an independent agency of Government. McCarran has reported that such provision is "certain" to be included.

(2) The bill, it is believed, will aim to equalize jurisdiction over aviation between State and Federal Governments. One of McCarran's chief points of opposition to the Lea bill is that it extended Federal control too far.

(3) The bill's provisions are expected to be drawn with a view to encouraging new airlines or air contractors to enter the domestic air transport system rather than permitting existing lines to extend their networks. This matter was the subject of lively correspondence between McCarran and the Chairman of the Civil Aeronautics Board in February of 1942. Again, when Sen. Walter F. George (D., Ga.), put through a Senate resolution requiring the Board to justify certain of its policies, McCarran attached an amendment requiring the Board to explain its favoritism to "grandfather" carriers. CAB'S reply to this amendment, made in May, 1942, McCarran declared, was an attempt to evade the issue and not to answer it.

Criticizes 'Freezing'

In his letter to the CAB Chairman, McCarran stated: "It was never the intention of Congress, in enacting the Civil Aeronautics Act, to freeze air carriers as they existed at the time of the Act's passage, but the record of decisions of the Board up to last February (1942) show that without a single exception, where a new domestic carrier has been heard the application of the new carrier has been denied, and further, that awards of routes wherefor a new carrier has applied have been granted only to 'grandfather' air mail contractors."

(4) McCarran is opposed to surface carrier entrance to the air carrier field "under any circumstances." His position points to the inclusion in his bill of perhaps even more stringent bars to surface carriers than are included in the Civil Aeronautics Act of 1938.

Plans Unknown

Whether or not Senate Commerce Committee will take action on McCarran's bill cannot yet be ascertained. Several Senators on the Committee are of the opinion that no aviation legislation—either domestic or foreign—should be enacted until peace plans are sufficiently known that a measure can be framed to fit the peacetime world. McCarran himself has been somewhat inclined to this belief. His decision to introduce legislation was a move to counteract the Lea bill, to which he has announced his opposition.

Signs of the surface carrier battle which has been waged in the House in connection with the Lea bill have not yet appeared on the Senate side of the Hill.

Winners of Institute Awards for 1943

The Institute of Aeronautical Sciences honored the five men pictured above at its annual Honors Night Dinner January 24 in New York City. William H. McAvoy, chief test pilot of the National Advisory Committee for Aeronautics, received the Octave Chanute Award; Lt. Col. Joseph J. George, Chief of Special Studies Section, Weather Division, Headquarters Army Air Forces, the Robert M. Losey Award; Brig. Gen. E. G. Reinartz, commandant of the School of Aviation Medicine, Randolph Field, the John Jeffries Award; William Benjamin Bergen, chief flight test engineer, Glenn L. Martin Co., the Lawrence Sperry Award; and Col. Hollingsworth F. Gregory, A. C. United States Army, the Thurman H. Bane Award.

Vision and Caution Advised in Construction of Airports

Kansas City Planning Conference Attended by 641 Delegates

By GERARD B. DOBBEN

VISION and caution in the planning and construction of airports were the dominant notes heard at the mid-western Airport Planning conference at Kansas City Jan. 24 and 25.

The conference attracted 641 delegates from 14 states. Among the delegates were 42 mayors and several city managers who came for honest counsel and advice and who obtained it from the various technical consultants as well as from a carefully selected group of conference speakers.

While the conference did not lack any of the enthusiasm which marks aviation gatherings, men prominent in the aviation industry said they recognized a degree of realism that has been absent from some aviation meetings. It was truly, as advertised, a grass roots conference planned to answer the questions of the average community as to what place it might be expected to assume in the aviation picture of tomorrow.

Several of the speakers emphasized that airports must be self-sustaining, at least as far as operating and maintenance charges are concerned. While few airports today have developed sufficient revenues to amortize even a small part of the capital investment numerous suggestions were made as to revenue possibilities, including the possible creation of "Air Parks" as community recreational centers.

The conference was planned by the Aviation Department of the Kansas City Chamber of Commerce, with O. E. Crossey, chairman of the Chamber's Airport committee, Lou E. Holland, of the Chamber's Aviation Department Executive Committee and Richard C. Murray, Aviation Commissioner, active in both arrangements and all meetings. E. Lee Talman, executive vice president of TWA, presided at both the opening meeting as well as the big conference banquet.

First speaker was T. E. Flaherty, supervisor of Airports, Fifth region, CAA who spoke on "Airport Planning and Requirements." Flaherty acquainted the gathering with the services offered by CAA relating to "public airports," their design, construction and development.

"We maintain a staff of highly specialized engineers who are specialized in airport lighting, runway paving, grading and drainage and engineer consultants for the various phases of airport construction and improvement project," Flaherty stated. He then mentioned the following publications as being available through the Airport Section of CAA:

Standard Airport Lighting Publications, Publications on Paving, Publications on Airport Administration and Terminal Buildings, Wood Frame Hangars, Steel Frame Hangars, Control Towers, Drainage, Airport Fueling Facilities, Airport Design Information, Approach Standards, Runway Marking numerous pamphlets on zoning, Model Airport Zoning Acts.

Flaherty also explained how CAA classifies airports. "The classification," he said "starts at Class I and runs upward, the higher the class, the larger the airport. Our Class 1 airport has landing strip lengths of 1800 feet as a minimum to 2500 feet as a maximum; Class II, 2500 to 3500 feet; Class III, 3500 to 4500 feet and Class IV, 4500 to 5500 feet, etc. These are sea level lengths and must be increased for altitudes above sea level at the rate of approximately 250 feet for each 1000 feet above sea level."

While it's a lot more glamorous to draw up a program for a million dollar airport, prepare striking blue prints and architect's drawing, launch bond sales and finally dedicate it with the usual fanfare, actually the smaller airfields, needed in every community, should have first consideration, John M. Hagen told the conference.

Hagen, who is the airport project chairman of the personal aircraft committee of the Aero Chamber, and is also executive assistant of Aeronca Aircraft Corp, continued: "Many cities need the bigger installations, but smaller airfields are needed, whether or not an airport is in order also.

"We need small fields that are privately owned by individuals or groups to accommodate their own aerial vehicles. We need small airfields sponsored by communities, by counties and by states so that those who cannot afford their own fields still can have the advantage of proper ground facilities, as they have adequate roads and highways.

We need airfields near ball parks, beaches, golf courses, race tracks, amusement parks, favorite country eating places, fishing and hunting haunts. And especially do we need them near people's houses and places of business so that they need to walk or ride only short distances from their front doors to their aircraft.

"One field may be merely a landing strip alongside a main highway on the outskirts of the community. Another may be an L-shaped or T-shaped combination of strips in a suburb. Another may be a seaplane base in the river or along the water front. Another may be a rectangular field out near the amusement park . . . The mere existence of many airfields will be major contribution to the maintenance of a strong and vigorous aircraft industry in the postwar world," Hagen said.

The first consideration in planning an airport is safety and no city should consider potential airport sites which do not provide sufficient areas for maximum length runways, said Louis Inwood, assistant director of Economic Research for TWA.

"Safety in the air begins on the ground," Inwood said. "Since the whole operating policy of the airlines centers around safety, all other considerations in planning an airport should be subordinate." He set out certain basic runway lengths for both airports intended for

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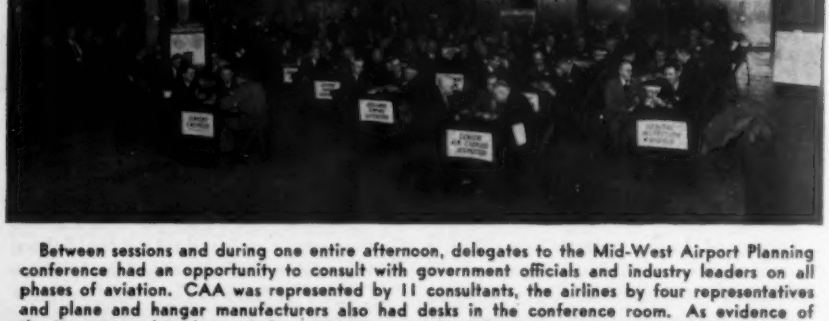
Wanted—An Airline

Most of the delegates came to the Kansas City Airport Planning conference to obtain information on how to build an airport.

Not so with Howard Noble, president of the Mitchell, S. D. Chamber of Commerce and Leo Rozum, Mitchell automobile dealer. They came looking for an airline to use a big abandoned Army airbase with its paved runways 7,500 feet long and 150 feet wide. The airport will accommodate four-engine planes but after the second day at the conference, Noble and Rozum were willing to settle for two engine transports or possibly even less.

A few of the Westerners, questioning the location of some of these Army Air bases as far as peacetime utility is concerned, counted off a half dozen which were located many miles from any sort of a town.

"If it ever becomes advisable to have the airport right in the center of the town, some farsighted promoter ought to get busy now and start planning to build a town around them," one delegate said.



Between sessions and during one entire afternoon, delegates to the Mid-West Airport Planning conference had an opportunity to consult with government officials and industry leaders on all phases of aviation. CAA was represented by 11 consultants, the airlines by four representatives and plane and hangar manufacturers also had desks in the conference room. As evidence of the interest in this phase of the meeting, some 150 delegates remained an extra half day for consultations after the conference had officially closed.

Committee Hears Shippers' Arguments for Air Privileges

Pogue Defends CAB; Asks Continuation of Restrictions

HOUSE Merchant Marine and Fisheries Committeemen, supported by the Maritime Commission and abetted by shipping firms, in a determined push to assure shipping lines of air privileges, pondered, during the fortnight, over the best legislative strategy to accomplish their purpose.

They appeared strong in their conviction that it was never the intent of Congress to bar shippers from air operations and that the Civil Aeronautics Act of 1938 had been "misinterpreted." But, in view of the Civil Aeronautics Board's position that it can grant air certificates to shippers only for very limited operations, Committeemen prepared to override the Board with legislation.

As prospects for early action by Rules Committee on the Lea bill diminished and shippers warned that the CAB had set May 15 as the final date for Caribbean hearings, Merchant Marine Committeemen slackened their drive for a shipping "rider" to the Lea bill and looked with favor upon an amendment to the Merchant Marine Act of 1936 which would clarify beyond reasonable doubt the Congressional intent that shippers are to be encouraged and not blocked in the development of air services.

Committee Important

The advantage of such strategy, Merchant Marine and Fisheries' Chairman Rep. Schuyler Otis Bland (D., Va.) pointed out, would be that such legislation would come within the jurisdiction of his Committee, favorably disposed toward it. A bill amending the Civil Aeronautics Act of 1938 would fall in the hands of Interstate and Foreign Commerce Committee, disinclined to budge on such legislation until the House has passed the Lea bill.

Bland announced that Maritime Commission lawyers are now working on the problem.

During two days of open hearings, Merchant Marine and Fisheries Committeemen listened with sympathetic ears to the arguments of representatives of shipping firms and debated with CAB Chairman L. Welch Pogue, who not only defended the Board's position on the 1938 Act, but went so far as to recommend that its provisos restricting shippers from the air transportation field be left intact.

Spokesmen for United Fruit Co., Grace Lines, Atlantic Gulf and West Indies Lines, and Waterman Steamship testified.

Discussion centered on two main issues:

(1) Whether or not the Civil Aeronautics Act has been correctly interpreted and whether it was the Congressional intent, in that Act, to bar overseas shippers, along with domestic surface carriers, from the air transportation field;

(2) Whether it is in the best national interest to allow shippers to engage extensively in air operations.

Shippers maintained that the CAA Act has been misintepreted, that it was not the Congressional intent to bar them from air operations along with domestic surface carriers and that it is essential that they be allowed to engage in air operations to promote the American merchant marine in the national interest. Pogue took opposite position.

Discussion on the interpretations which have been placed on the CAA Act was technical, legal, and involved.

Only One Decision

Only one court decision has been made on the Act's provisos regarding shippers' rights to engage in air transportation. Shippers' refutation of the Board's interpretation of other provisos and their contention that the Board has misapplied decisions based on legislation dealing with domestic surface carriers to overseas transportation indicates that the Courts may be called upon to pass down additional decisions unless the Congress clarifies the law with new legislation and settles controversies.

From the testimony given before Merchant Marine and Fisheries, it appeared that whereas the Board makes Sec. 408 of the Act, dealing with consolidations and mergers, applicable to all shipping firms seeking air certificates, shippers seek consideration under Sec. 401 of the Act providing for the issuance of certificates in the public interest. Shippers pointed out that CAB's decision that Sec. 408 (b) of the Act was applicable to Sec. 401 was not sustained by the Circuit Court of Appeals in the American Export Case in 1940.

The Board views air operations by shippers as the integration of control of two different media of transportation, testimony indicated. Shippers, on the other hand, appear to view their use of the airplane as part and parcel of their "shipping" services, and as neither a consolidation or merger restraining competition.

Pogue reviewed for the Committee, in legal detail, the one court decision setting a precedent for air certificates to shippers: the now-famous American Export case.

The Court reversed the Board's interpretation of Sec. 408 (a) of the Civil Aeronautics Act. The Board had maintained that provisos in this section against the merger and consolidation of an airline and steamship company did not apply to an airline organized by a steamship company. The Circuit Court of Appeals declared that its interpretation was "too literal" and maintained that the organization of a new airline by a steamship company was, for all practical purposes, the equivalent of a merger or consolidation of an airline and steamship company.

As the result of this decision, Pogue reported, shippers establishing new airlines must meet the provisions of Sec. 408 (b) of the Act, requiring that certificates be awarded to a carrier, other than an air carrier, only when operations "will not restrain competition," and only when the carrier can use aircraft to public advantage in its operations.

Pogue said that the Board has interpreted this provision very strictly, and as virtually barring all surface carriers from air operations except such air operations as are definitely auxiliary and complementary to surface operations.

He outlined the reason for this rigid interpretation:

(1) Congress passed the Motor Carrier Act in 1935, with prohibitions against the joint control of two different media of land transportation;

(2) These prohibitions were very strictly interpreted by the Interstate Commerce Commission;

(3) In 1938—three years after the Motor Carrier Act was enacted, Congress passed the Civil Aeronautics Act using exactly the same phrasing, with regard to joint control of air carriers and surface carriers, as was used in the Motor Carrier Act.

Congress was well aware of the interpretation which had been placed on the provisions in the Motor Carrier Act, Pogue said, and therefore, when it used the same phrasing in the Civil Aeronautics Act, the Board believed that it was the intent of Congress that there should be no integration of control of two different media of transportation—whether domestic or foreign.

The Board was sharply criticized by Merchant Marine and Fisheries Committeemen for applying restrictions against domestic air carriers to overseas carriers pitted against foreign competition.

Jackson Testifies

William K. Jackson, vice president and general counsel of United Fruit Co., speaking for shippers at the Committee's hearings, maintained that the only legislative actions which forbid the entrance of one form of carrier into the field of another form are found in the Panama Canal Act of 1912 and the Motor Carrier Act of 1935. In both cases, he claimed, the laws govern domestic transportation and neither regulates against steamship lines. The Merchant Marine Act of 1936, he added, specifically provides that the Maritime Commission will aid steamship lines in the use of air carriers "in conjunction with or in lieu of steamships."

"So far there is no question of Congress's intent," Jackson declared. "When they talk about a 30 year's history of Congressional intent, they really mean a one year decision by the Board. They are applying a domestic intent to an overseas pattern."

On the question of whether or not extensive air operations by shippers were in the national interest, Pogue also opposed the position of shippers and Merchant Marine and Fisheries.

In their testimony, shippers put forth the argument they have entensively advanced (*American Aviation*, Jan. 15, 1944), to show that air privileges are essential if the American merchant marine is to maintain its place among the merchant marines of foreign nations.

Pogue declared that the "public interest" demanded the most vigorous development of two merchant marines—the merchant marine of the air, as well as the sea-going merchant marine. He insisted that airline companies and not steamship companies were best qualified

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Transatlantic Air Travel to Exceed Estimates—Loening

Denounces Monopoly, Opposes Routes for Rails and Shippers

By CONRAD CAMPBELL

TRANSATLANTIC air travel by 1950 will be well over 20 times as large as figures that have been based solely on previous steamship traffic, Grover Loening told the Foreign Policy Association meeting in Minneapolis last fortnight.

Loening, who is aircraft consultant to the War Production Board, but who was not voicing WPB views in his speech, quoted Pan American Airways' flight record of 475,000,000 passenger miles in 1943 in direct refutation of United Air Lines' prediction that would limit potential transatlantic air traffic to 51,000 passengers yearly, accounting for only 200,000,000 passenger miles.

In a commentary on aviation plans and policies for future air transport expansion, Loening soundly denounced the advocates of monopoly in postwar international transportation, called the surface carrier interests to account for their tactics in attempting to enter the field of air transport, and indicated that since the shipping lines had muffed their earlier opportunity to get into air travel, their present efforts merited little consideration.

To envision the size of future international traffic, a very great mistake has been made by the proponents of a monopoly in this field, Loening gave as his opinion. United Air Lines, in particular, he recalled, had widely circulated a prognostication on international air traffic based on the steamer traffic figures before the war, and then assigning a probable percentage of this. We might just as well have figured the automobile industry's capacity in 1910 by the number of people who were riding around with horse and buggy, he asserted.

Opens New Market

"The service that is given by air is so totally different than the five to 10 day service by sea, that it opens up the transatlantic travel market to a totally different type of customer. As a matter of fact, what should be used as a gauge for transatlantic travel is the hours used in traveling. In other words, if it takes 15 hours, which is what it will take, to cross from the United States to the continent of Europe in a mere overnight jaunt, what we should really take are the figures in the United States of the number of people on all the railroads and all the buses that take trips to places 15 hours away.

"The whole idea of taking a percentage of an older form of transport done in a totally different way as a guide is fallacious. What is more important is to derive figures on how many people could afford to travel 15 hours and do so customarily in connection with their business or pleasure, when there is made available to them such new transoceanic air routes and new places to go, new business worlds to conquer and new pleasure spots to visit, as a vigorous competitive air transport system will develop. On this basis, it is conservatively estimated that the transatlantic travel by 1950 will be well over 20 times, if not more, as large as the figures based on steamship travel.

"To further emphasize the ridiculousness of this absurd steamer traffic comparison, let me cite United Air Lines' prediction that the North Atlantic traffic would start with some 51,000 passengers. Since this trip involves a distance of around 4,000 miles, this means some 200,000,000 passenger miles for the year. But look how prognosications can blow up in your face, because it so happens that Pan American Airways has already officially reported that they flew 475,000,000 passenger miles this last year alone. It seems to me that these two outstanding proponents of a monopoly in this great field should at least read each other's articles before telling us what a limited future we are going to have so they can argue the Senators into a monopoly in this romantic developing field."

Amplifying his statement, Loening presented figures to show that on our international airline system in 1943, passenger and mail loads were doubled over 1942, and four times as much as in 1941. A fleet of 150 aircraft operated by Pan American Airways carried 606,000 passengers for a total of 475,000,000 passenger miles, and 72,000,000 ton miles of cargo, plus 14,000,000 ton miles of mail.

In addition to the airline operations, the Army Air Transport Command and the Naval Air Transport Service have contracts of a military nature with the various air line companies in which these companies operate Army and Navy planes all over the face of the earth.

"The transoceanic air mystery built up so cleverly by Pan American Airways to further their development has been exploded, but in no detrimental way to that great company, rather as evidence that we are not dependent on the eggs in this one basket at all."

Praises Airlines

Our major domestic airlines, under the impetus of these Army and Navy contracts, very quickly learned to fly all the oceans in masterly style, proving that the successful spanning of these great ocean distances by air is not the particular specialty of any select few Americans or of one company, but on the contrary, is the successful speciality of the whole American aeronautical industry, any part of which can do as well as any other company, he asserted.

"When it is realized that Pan American Airways is currently already taking in a gross business of five times that of the largest domestic American company, it would seem that this company's business is almost large enough now to permit others to share in this lucrative field."

Ocean distances are no longer a bar to the operation of aircraft under economics that are sound, profitable and effective, Loening claimed stating that the airplane itself has grown up to international air transport.

Asserting that the winner in the airline field is the operator of the fastest, most comfortable and safest airliner, Loening pointed out that no matter how big a foreign monopoly is set up to shove us out of our competitive American system, it will get no business if it has slow airplanes, sloppily operated, surrounded by dangers due to a self-satisfied monopolistic set-up.

In the international picture the question of monopoly against competition takes immediate precedence as issue No. 1 as far as the United States is concerned, he contended.

"Up to the beginning of the war, all of our international airlines were in the hands of one company, Pan American Airways, which had several subsidiaries or partners, in what was known as the Pan American system. This company, by a wonderful facility in public relations, presented a picture of success and achievement to the public that was put over 100%. By virtue of complicated agreements with various nations, it endeavored to protect its monopoly position, presented the strongest possible arguments for the continuance of its monopoly, and claims it is essential for the success of American aviation that it be left that way.

"Actually, this company did only moderately good work, as reviewed in a fair and unbiased way. It developed no night flying on its routes, making its passengers only too familiar with the four o'clock in the morning takeoff. The planes that it developed were not particularly outstanding. The famous Clipper, for example, was originally announced as capable of carrying fifty passengers at 200 miles per hour over a distance of 3200 miles. When

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Arnold Gets Wright Check

Robert H. Hinckley, right, chairman of the committee on arrangements of the Kitty Hawk Fortieth Anniversary Committee, is shown presenting Gen. H. H. Arnold, commanding general of the Army Air Forces with a check for $3,243, proceeds from the dinner given Orville Wright in Washington, D. C., on the occasion of the fortieth anniversary of the Wright Brothers' first flight. The money will go to the Army Air Forces Aid Society as a memorial to Wilbur Wright.

"We'll Go All The Way *to get you there*"

The present shortage of airplane seats is just as embarrassing to us as it is to you.

Our primary job is the job of getting you where you want to go in the way you want to travel – and it really hurts when we have to turn away good customers who want to travel on our airline.

All airlines, of course, are looking forward to the day when this traffic jam can be eased by the addition of more planes, which will come when pressing military needs are reduced.

In the meantime, we of **TWA** want to do all we possibly can to get you where you want to go – on our planes if that is possible, by some other means if that just isn't in the picture.

Our personnel have a lot of experience and familiarity with all means of transportation. Many times they have been able to "help people out" just by knowing where to turn.

At all times, you will find them ready to go all the way in solving really pressing travel problems, and I hope you will not hesitate to call on them.

Naturally, our ticket offices are busy, and are somewhat handicapped by the general manpower shortage.

But what we may lack, for the moment, in facilities, we sincerely try to make up for in earnest effort; and we will be very glad to have you try us when you're faced with a really necessary trip.

Jack Frye PRESIDENT

TRANSCONTINENTAL & WESTERN AIR, INC.

TWA *GOES ALL THE WAY*

65,000 POUNDS OF BOMBER!

65,000 pounds of bomber...and what a bomber it is! From Ploesti to Rome and Berlin and from Guadalcanal to the Marshalls and the Gilberts, the enemy has felt the devastating weight of the destruction the Liberator carries.

In 1940, the B-24 was equipped with seven machine guns...four 30 calibre and three 50 calibre. A crew of six was required to operate her... and her total gross weight was rated at 41,000 pounds. Today, the Liberator is rated at 65,000 pounds gross with ten to thirteen 50 calibre machine guns operating in four power turrets, with a crew of ten, ten tons of bombs and far greater supplies of fuel and ammunition.

Even with this 50% increase in load, the 56" tire size that equipped the original Liberator still does the job. Lighter, stronger U.S. Royal Rayon Cords replaced heavier, bulkier cotton cords. And today, more muscle, more strength to carry the thirty ton load of the Liberator loaded for action are built into the new Nylon tires supplied by "U.S." to the Army Air Forces.

U. S. Royal Smooth Contour Block Tread... The sharp edges of the U. S. Royal Block Tread protect against either forward or lateral skids—make take-offs and landings safer.

Listen to the Philharmonic Symphony program over the CBS network Sunday afternoon, 3:00 to 4:30 EWT. Carl Van Doren and a guest star present an interlude of historical significance.

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CAA Is Developing Stall-Warning Device

A device which will warn airline pilots of impending stalls even when the wings are "iced up" is now under development by the Civil Aeronautics Administration, James George, CAA Engineer told the Institute of Aeronautical Sciences in New York late last month.

At the same time he announced that reliable stall-warning devices, which he asserted will eliminate the No. 1 hazard of private flying, have been developed and perfected.

George stated that more than half of all fatal private flying accidents are caused by stalls with a death toll exceeding 100 per year. The two low-cost instruments which will warn the pilot of impending stall will be commercially available in the near future, George explained.

The two devices for private planes do not function under icing conditions but of the 512 stall accidents which private aircraft suffered during the last three years, only five involved icing, since private flyers generally stay on the ground during bad weather.

Attempts to develop a successful stall-warning device date back to 1918. In 1941 the CAA was requested by the National Advisory Committee for Aeronautics and later by industry representatives to continue the research and testing in this field.

The first practical instrument is being produced under contract with the CAA by the W. & L. E. Gurley Company of Troy, N. Y., utilizing a method originally devised by Dr. Leonard Greene of Mineola, N. Y. Wind tunnel testing was conducted by Professor A. J. Fairbanks at Rensselaer Polytechnic Institute, and development work by H. R. Larsen, chief engineer of the Gurley Company.

Another device has been developed at Wayne University, Detroit, under the direction of Professor Arthur A. Locke. Power Equipment Company of Detroit is contractor for this device.

Work on the air-carrier type instrument is being conducted for the CAA by the Westinghouse Electric & Manufacturing Company under the direction of Thomas Spooner, with wind tunnel and flight tests by Dr. O. C. Simpson of Carnegie Institute of Technology.

The entire development program is under the general supervision of A. L. Morse, chief of the CAA Aircraft Development Section.

In the two devices now ready, the pilot is warned of an approaching stall by the sounding of a horn and the flashing of a light. These signals are actuated in the Gurley model when the airplane reaches a certain angle and the air flow is reversed. This forces a vane which projects from the leading edge of the wing to move upward from its position in normal flight, thereby closing a switch.

The Wayne unit is operated when pressure reversal sucks a diaphragm upward and forces an attached metal plate against electrical contacts. It has a cut-out button which can be pushed during take-offs and landings to eliminate horn noise when radio reception from a control tower is desired.

The Westinghouse program is based on a warning being triggered by changes in the characteristics of the airflow over the top surface of the wing.

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WHEN your AIR EXPRESS shipments are ready, reach for the phone. Don't wait for "routine" afternoon pickups. Pack as early in the day as possible and SHIP WHEN READY! That's the way to get the full benefit from AIR EXPRESS service. It avoids end-of-the-day congestion when Airline traffic is at its peak. Your shipments move faster, are delivered faster. And to cut costs — AIR EXPRESS shipments should be *packed compactly* but securely, to obtain the best ratio of size to weight.

A Money-Saving, High-Speed Tool For Every Business

As a result of increased efficiency developed to meet wartime demands, rates have recently been reduced. Shippers nationwide are now saving an average of more than 10% on Air Express charges. And Air Express schedules are based on "hours", not days and weeks — with 3-mile-a-minute service direct to hundreds of U. S. cities and scores of foreign countries.

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Representing the AIRLINES of the United States.

Britain Ready for Postwar Air Discussions—Beaverbrook

Lord Beaverbrook, Britain's No. 1 man on matters of postwar air policy, has reported to the House of Lords that Great Britain is now ready and anxious to proceed with international discussions and is "waiting on the Americans to complete their surveys." Text of Beaverbrook's statement, made on January 19, is:

"We are ready at any moment to enter into an international conference. I cannot tell you when it will take place. But in our view, when the time comes, our first concern will be to gain general acceptance of certain broad principles whereby civil aviation can be made into a benign influence for welding the nations of the world together into a closer cooperation. These principles must assure to all countries a free and fair share in this new means of transportation. No nation, great or small, except, of course, the guilt aggressor nations, must be debarred from taking a full and equitable part in the upsurging development of civil aviation that will follow the end of the war. It will be our aim to make civil aviation a guaranty of international solidarity, a mainstay of the world's peace. Of course, there are vital issues on which it will be necessary for the great powers to reach preliminary agreement. We are ready for such discussions at any time. At present we are waiting on the Americans to complete their surveys.

"In particular, the question of bases has been widely canvassed. We have many bases at our disposal. They are scattered all over the Empire, and in other lands, too, the needs of war have caused us to construct airfields suitable for peace as well as for war. I do not, of course, deal today with the bases in the Dominions. These are necessarily separately dealt with, but they must and will be a subject for discussion between Great Britain and the Dominions. But, as for the bases under our control, let me say at once that the Government has no desire to exclude aircraft of other nations. We demand no prescriptive right to the use of airfields for ourselves. Rather do we mean to use them for the purpose of steadily developing civil aviation throughout the world. Here it must be said that the bases are few in number at which any great volume of traffic can be collected. Just the same, it will be necessary to have international agreement on traffic regulations and arrangements. This is an essential condition of future developments. For my part, I find myself on this subject in agreement with Mr. William Burden, of the Department of Commerce in Washington. Mr. Burden, speaking in Washington on the 5th of January, said:

" 'Complete freedom of the air in the present state of the world might result in commercial anarchy.'

"I share Mr. Burden's view. For our part, we are prepared and ready at any time to enter into negotiations with a view to disposing of all traffic problems and arrangements that will arise.

"Now the President has recently made certain proposals for the future of international civil aviation. He has declared for the right of innocent passage for all nations throughout the world and for the right to land anywhere for refueling and other non-traffic purposes. And I am now authorized by the Prime Minister to say that we join with the President to the fullest extent in subscribing to these principles. I repeat the principles: The right of innocent passage for all nations throughout the world, and the right to land anywhere for refueling and other non-traffic purposes.

"I am asked by some noble lords to state what is the future policy of the Government and I will state it here. It is our intention that the Government shall take a full measure of responsibility for the development of civil aviation when the war comes to an end. That will be our right and our duty, and to the performance of the task we shall bring the vast knowledge of the air and of the airplane which Great Britain has acquired."

Col. Swatland Named Chief of Procurement at Wright

Col. Donald C. Swatland, AC, has been named Chief of the Procurement Division of the AAF Materiel Command at Wright Field, it was announced last fortnight by Maj. Gen. Charles E. Bradshaw, commanding general. Col. Swatland previously served with the legal branch of the Contract Section at Wright Field. His new duties involve purchase of all airplanes and equipment for the AAF. Materiel Command now has contracts with more than 26,000 suppliers of more than 450,000 separate items, it was reported. Purchasing has been under the direction of Brig. Gen. Aaron E. Jones, who has been given an unannounced assignment elsewhere.

Swatland

House Committee Reports 1945 Air Mail Appropriation

The House Appropriations Committee, reporting out the Treasury and Post Office Appropriation bill for fiscal 1945, starting July 1, has recommended that $35,000,000 be provided for domestic air mail and $3,785,000 for foreign air mail. The 1944 appropriation for domestic air mail was $22,000,000, while $4,500,000 was provided for foreign service.

The Budget Bureau had recommended $37,312,000 for 1945 domestic air mail. The Appropriations Committee explained, however, that due to rate decreases ordered by the Civil Aeronautics Board, $35,000,000 would cover expenses. The amount contained in the bill for foreign air mail was the same as that recommended by the Budget.

Labor Turnover Cut In West Coast Area

A major decline in labor turnover in West Coast aircraft plants was reported last fortnight by the Aircraft War Production Council.

Figures for the seven major aircraft companies showed the October quit rate was 5.79% or 19.36% below September's 7.18. In November it dropped again to 5.36, which was 7.4% under October. December figures for one company showed the rate fell from 5.59% to 3.77, and other available data also indicated the downtrend was continuing.

Supporting statistics showed that during November the companies lost only 16,548 workers from all causes, compared with 17,883 the preceding month and a July-August-September average of 22,897. Incomplete figures indicated the December total would be well under November.

Especially significant was the fact that there was a 7.38% drop in November—from 49.52 to 42.14—in the number of employes who quit for personal reasons.

January Production Sets New Record With Weight Up 5.4%

A weight increase of 5.4% brought aircraft production for January to an all-time high of 90,300,000 pounds. Although the total number of planes produced was exactly the same as November's 8789 and slightly behind the December level, the productive increase was shown clearly by a comparison with November's total weight of 81,500,000 pounds for the same number of planes.

The Aircraft Production Board emphasized, in its official announcement, the tremendous increase in the proportion of tactical aircraft in the schedule. With training planes cut back to a minimum during January, 82% of the total represents tactical types, with 89% of these combat types. In both categories January acceptances exceeded schedules and surpassed the number of similar types accepted during December.

"Results were particularly gratifying to the Aircraft Production Board," Chairman C. E. Wilson stated, "as the most marked acceleration was in the urgently needed combat planes. The increase in these types, particularly in heavy four-engine bombers and long range fighters, substantially balanced the planned decreases in trainers and older tactical models which, as reported earlier in the month, had been reduced in the schedule to approximately 78% of December acceptances."

The Board found the most remarkable feature of the January record was that practically every company in the country met or exceeded its schedule. A few plants were slightly under schedule, with the vast majority a little above.

ARMY'S AMPHIBIOUS STINSON

for liaison, observation and ambulance work

EDO
AMPHIBIOUS
FLOATS
with retractable wheels

Stinson (Vultee) L-1A "Vigilant" equipped with Edo Model 77 Amphibious Float Gear . . . Companion-in-service to the giant Edo-equipped C-47.

Edo's well-known line of standard floats is now augmented by several amphibious models that may be operated from land, water or snow. Already Edo has equipped, with amphibious floats, airplanes ranging in gross weight from 1300 lbs. to 29,000 lbs. This exclusive Edo development is one of the outstanding and timely contributions of the American aircraft industry toward victory on our land-sea-air fronts. When peace comes, flying for pleasure and business will gain in freedom and usefulness through the use of Edo amphibious float gear.

A "flick of the switch" extends or retracts the electrically operated wheels of Edo Amphibious Floats. 1. Bow wheel fully extended—main doors closed. 2. Bow wheel fully retracted—all doors closed.

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407 SECOND STREET, COLLEGE POINT, L. I., N. Y.

EDO FLOAT GEAR

SERVES THE UNITED NATIONS

AAF 'World's Largest Air Force', War Dept. Reports

MORE THAN 2,300,000 officers and enlisted men combine to make the U. S. Army Air Forces the largest in the world, recent statistics released by the War Department indicate. From 1939 through 1943, the AAF Training Command has graduated from its flying and technical schools 1,048,499 of this total.

Pilots trained during the five-year period numbered 100,799, including 3,491 glider pilots, 2,348 liaison pilots, and 444 women. In addition, 20,086 bombardiers, 18,905 navigators, 107,218 aerial flexible gunners, and 555,891 ground and air combat crew technicians were trained. Technicians are divided into 65 categories of specialists, including 240,360 airplane mechanics, 100,339 radio operator mechanics, 70,166 armorers, 46,052 clerks, and 98,974 miscellaneous, such as sheet metal workers, parachute riggers, welders, Link trainer operators, photographers, and cryptographers.

An idea of the complexity of the training of each technician is given in the curriculum for a combat crew technician on a B-29 "Super-fortress." He must complete five courses in basic mechanics, advanced electrical specialists' work, advanced mechanics and electricity at the B-29 factory, and finally a course for armorers.

The Training Command has developed the world's largest educational system, the official Army statement claims. It operates a total of 455 installations in every state of the Union. Individuals under Training Command jurisdiction as of Nov. 30 numbered 1,020,777, nearly an eighth of all Army personnel; students numbered 489,361 and permanently assigned personnel such as instructors and administrative and maintenance personnel totaled 390,016.

The War Department report includes the following breakdown:

1. Production of Air Crew Members (Courses Successfully Completed)

	Number Trained					Total
	1939	1940	1941	1942	1943 (As of 30 Nov. 43)	1939-43 (As of 30 Nov. 43)
Pilots	696	1786	7244	28,782	56,008	94,516
Navigators	....	44	601	4,477	13,783	18,905
Bombardiers	....	18	310	5,760	13,998	20,086
Aerial Gunners	....	....	....	25,820	81,398	107,218
Miscellaneous *	....	....	198	2,325	18,850	21,373
Technicians **	....	....	....	273,068	513,333	786,401
Grand Totals	696	1848	8353	340,232	697,370	1,048,499

* Miscellaneous includes Glider and Liaison Pilots, Observers, Women Pilots, and Pilot Transition.

** Graduates of Officer's Courses	28,374	35,856	64,230
Graduates of Factory Courses	40,448	73,634	114,082
Graduates of Advanced Courses	10,194	42,004	52,198
Graduates of Basic Courses	194,052	361,839	555,891
Airplane Mechanics	99,829	140,531	240,360
Radio Operator-Mechanics	32,763	67,576	100,339
Armorers	21,302	48,864	70,166
Clerks	9,017	37,035	46,052
Miscellaneous	31,141	67,833	98,974

2. Schools—Number of Schools (As of Nov. 30, 1943)

A. FLYING TRAINING	
College Training Detachments	151
Classification Centers	3
Preflight Schools	5
Primary Pilot	54
Basic Pilot	31
Advanced Pilot	30
Pilot Transition	14
Navigator	5
Bombardier	9
Aerial Gunner	7
War Training Service Detachment	54
Miscellaneous	34
TOTAL	397
B. TECHNICAL TRAINING	
Basic and overseas replacement Training Centers	14
Army Technical Schools	23
Factory School and Detachment	26
Colleges	24
Miscellaneous	6
TOTAL	93
GRAND TOTAL	490*

* Note: This total is higher than the total number of stations (455) since several schools may be located at one station.

3. Airplanes Used by Flying Training Stations (as of Nov. 20, 1943)

A. Training Types	23,674
Tactical Types	4,223
TOTAL	27,897

4. Accidents

A. Number of hours flown per fatal accident:

Jan.	21,200	July	22,400
Feb.	24,500	Aug.	28,300
Mar.	17,700	Sept.	26,900
Apr.	25,400	Oct.	30,800
May	23,500	Nov.	36,800
June	27,600		

AVERAGE—11 months—25,600

5. Total Personnel (as of Nov. 30, 1943)

Military Personnel	390,016
Civilian Personnel	126,431
Miscellaneous Personnel	14,969
Students	
**Air Crew	253,553
Technicians	129,485
Recruits	106,323
TOTAL STUDENTS	489,361
GRAND TOTAL	1,020,777

** Pilot, bombardier, navigator, flexible gunner.

Southwest Appoints Two

Southwest Airways announces that J. W. Brown and Steven Martino have been appointed chief pilot and senior pilot, respectively, on the military airline operated by the company for the Air Transport Command on the West Coast.

Martin Promises to Deliver 20 Mars By Spring of Next Year

Coincidently with the announcement by the Glenn L. Martin Company that the Navy had placed an order for twenty additional Mars type flying boats, the original Mars, now operated by the Navy, completed a record round-trip flight from the West Coast to Hawaii.

The craft flew from California to Hawaii, with a crew of fifteen, twenty passengers, and a cargo of 13,860 pounds of mail and high priority war materials. The 2,400 statute-mile flight took 15 hours, 18 minutes from the takeoff to the landing, but the time between points was 13 hours, 9 minutes, as the Mars circled the islands for 1 hour, 51 minutes awaiting sunrise. Weight was 141,800 pounds on the take-off, including more than 6,000 gallons of gasoline.

On the return trip, the Mars brought back 25 persons, including Comdr. Gene Tunney. Round trip time was 27 hours, 26 minutes. Commander Coney, the craft's skipper, claimed that the Mars proved economical in operation. "Per pound carried, it was the cheapest air haul ever made across the Pacific. This was a survey flight to see water conditions, outside air conditions and to check problems of weight and balance. The gasoline consumption was most economical."

In a later announcement, Glenn L. Martin is reported to have stated that the twenty new flying boats on order would be in service within a year from this Spring.

ASC to Reclaim 5,000,000 Gallons of Used Aviation Oil for Use in AAF Ships

An estimated 5,000,000 gallons of used aviation engine lubricating oil will be reclaimed by the Air Service Command during 1944, the War Dept. announces.

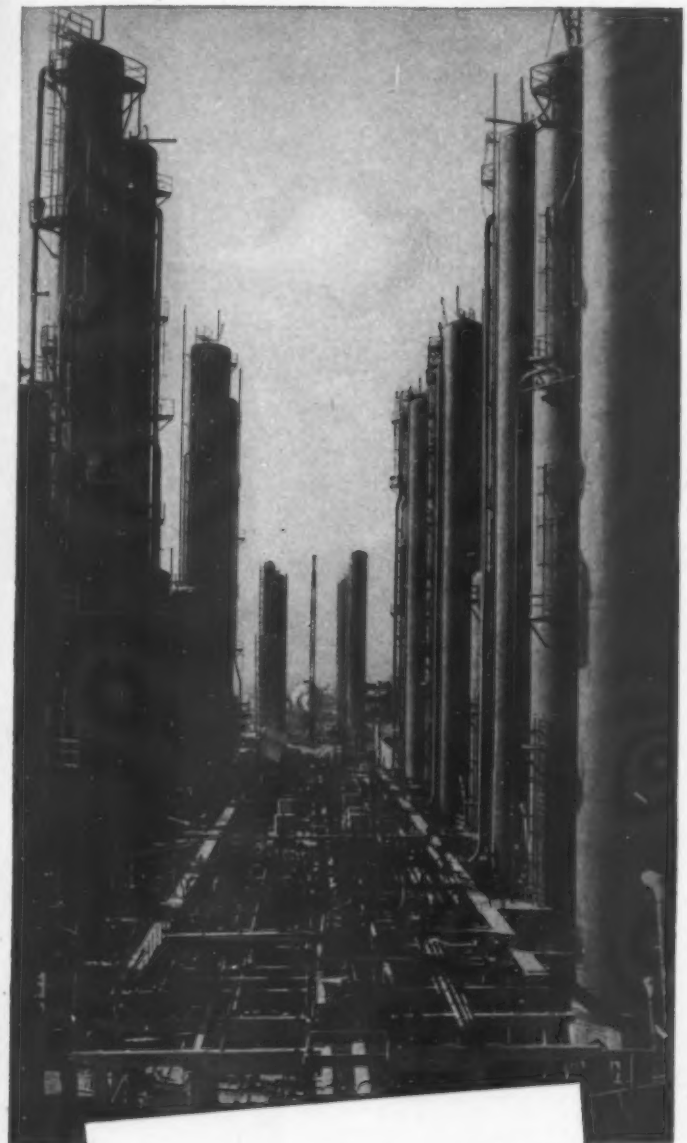
The reclaimed oil will be made available for unrestricted use in the Air Forces of the continental United States and will effect a saving amounting to approximately a half million dollars.

The reclamation process involves the re-refining of old oil, which will be processed in eight privately operated refineries, strategically located near centers of military aviation. There are no plans at present to operate refineries overseas for reclamation purposes.

Air Service Command revealed that 60% of all oil used by the AAF is consumed by training and routine flights in the United States. Only 20% of the oil used by the AAF at home can be processed and reused. Reclaimed oil must meet strict Army specification.

COMBINED OPERATIONS...

oilmen's style!



Combined Operations is a Commando term for a fierce, concentrated attack on an objective with every available weapon.

And it was with just such tactics that the petroleum industry waged a campaign for one of America's most critical war objectives . . . *Rubber!*

If America was to have rubber, we needed a lot of butadiene fast! So the Government and representatives of many oil companies held a conference. It was suggested that one big plant could produce more butadiene cheaper and faster than five small plants.

Everyone agreeing, the Neches Butane Products Company was organized by Atlantic, Gulf, Pure, Socony Vacuum, and Texaco. This nonprofit organization had access to the finest research facilities, the pooled technical knowledge, and the best brains in the petroleum industry—*at no cost to the Government!*

That's . . . *Combined Operations!*

Well, the problems the Combined Operators ran into were numerous . . . some of them seemed downright impossible.

But all of them were licked!

During the last 24 months, the Neches Butane Products Company has grown from an urgent idea into a plant that will produce enough butadiene to make 246 million pounds of synthetic rubber a year! In just 24 months, 314 bare Texas acres have been covered with a multi-million dollar installation of intricate equipment—equipment that will soon be helping to do the work of 45,000,000 rubber trees!

Combined Operations with a vengeance!

BUILT AND OPERATED through oil industry and Government co-operation . . . without profit.. for the successful prosecution of the war...and a victorious peace.

GULF

NOT JUST SHEETS—

PEELING A PROSPECTIVE PLANE SKIN. Will this aluminum sheet be shipped as such or, will the plane manufacturer who ordered it save valuable man-hours by having it prefabricated into a complete plane part by skilled Reynolds workmen?

BUT FINISHED PARTS—

NO LOST TIME when you use Reynolds Prefabricated Plane Parts. Completely finished parts can go right on the assembly line as soon as they are received at your plant. This modern method, pioneered by Reynolds, saves you manpower, plant space, time and scrap.

REYNOLDS

when you use REYNOLDS complete

Prefabricated Plane Parts Service

SAVES MANPOWER
SAVES SPACE
SAVES TRANSPORTATION
SAVES SCRAP

From our global battlefronts come the never-ending pleas, "Give us more planes, better planes". . ."deliver them faster." In the face of this, fabricating aluminum sheets into plane parts in your own plant takes manpower you can ill afford to spare.

By using Reynolds prefabricated plane parts service you can use all of your manpower to build planes.

- It saves you manpower because every aluminum piece you receive is a finished part, ready for immediate assembly.
- It saves plant space because you do not have to maintain excessive stock piles, do all your own fabricating or store and segregate your own scrap.
- It saves on transportation because it releases freight cars needed to haul scrap metal from your plant.
- And it saves on scrap because the 30% of every aluminum sheet that becomes scrap is refabricated in our plants in a matter of hours instead of months.

Reynolds finished parts saving thousands of man-hours

Airplane labor amounting to thousands of hours is being saved by Reynolds prefabricated plane parts. In fact, Reynolds, the first aluminum manufacturer to furnish complete plane parts from aluminum sheet, is supplying complete parts to every leading manufacturer of combat planes.

It is this trait of daring to lead—daring to be different—that has spurred on Reynolds, in 4 short years, to where its operations now cover 40 plants in 14 states, plus its own source of Bauxite from which aluminum is made. This urge to constantly move ahead is what keeps Reynolds men on a ceaseless search for new ways to make aluminum better . . . make it easier and cheaper to use.

Take advantage of Reynolds' resources, equipment and engineering skill. For any problem you may have in working with aluminum, no matter what it may be, you'll find Reynolds able to handle it in the most practical way. Reynolds Metals Company, Aluminum and Parts Divisions, Louisville, Ky.

ALUMINUM

REYNOLDS METAL

Lloyd Stearman Prepares Postwar Family Airplane

Lloyd Stearman, veteran designer who developed one of the first "foolproof" planes in 1936, the Stearman-Hammond, is ready with his version of the future family aircraft.

During an exclusive interview with *American Aviation*, in which he announced plans for postwar production, Stearman, chief engineer of Harvey Machine Company's aircraft division, previewed a model of his four-passenger pusher-type "sedan."

Streamlined, with all-around vision, of mid-wing, twin-boom construction, the plane has a 600-mile range, 150 mile cruising speed and 40 mile landing speed. In addition to pilot and three passengers, the craft will carry 100 pounds of baggage. Designed for a 200 horsepower, six-cylinder engine, gas consumption is placed at 15 miles per gallon. The plane will weigh 2,550 pounds and have a wing span of 38 feet. Ceiling is 20,000 feet.

Safety features include tricycle landing gear, fixed slots on the wings and a simplified control system, in which the rudder can be operated or not, at the pilot's option.

Sees Good Demand

Discussing the postwar market for private planes, Stearman whose designs have covered every field—air mail, military training and private flying—foresees a "good demand, comparable to the speed boat rather than the automobile market."

In his opinion, Americans won't take to the air, thousands upon thousands, during the years immediately following the war. Mass production of a cheap plane should be approached cautiously, according to Stearman, who plans a production schedule keyed to the "class" market.

Stearman believes any private plane should be designed on the basic tenet that ordinary human beings are going to fly them. Therefore, simplicity and safety factors come first.

The Stearman-Hammond, developed as a result of the Department of Commerce's safety plane competition, carried out Stearman's concept of the human element. At Burbank airport alone, 7,000 novices flew the plane, many of them taking off and landing on their first flight.

Lloyd Stearman, well-known designer and chief engineer of Harvey Machine Company's aircraft division, Los Angeles, previews a model of his postwar family plane.

Subjects Announced for Light Aircraft Meeting

National Light Aircraft Meeting planned for April 27, 1944, at the Horace H. Rackham Education Memorial, Detroit, Mich., announces that it will consider for inclusion on the program complete papers, or outlines, or summaries of proposed papers on the following subjects: Structural and Design Problems of Light Aircraft; Light Aircraft Engines; Instruments and Accessories; Postwar Regulation of Light Aircraft.

All papers submitted will be considered for publication in the Journal of Aeronautical Sciences or the Aeronautical Engineering Review.

Aerial Photography Found Useful in Airport Selection

Use of aerial photography in the selection of airport sites is enthusiastically recommended by Fred Grieme, chief of the Civil Aeronautics Administration Airport Development Section after tests conducted at some 25 CAA airport construction jobs had demonstrated the value of such a method.

Aerial photographs can reveal to the trained engineer soil characteristics which may be all-important in the choice of an airport site, Grieme said in reporting on the progress of a CAA-sponsored research project at Purdue University. Grieme believes this method will be of considerable value in locating suitable sites in foreign country.

By the interpretation of aerial photographs alone, it can be determined what the soil texture of a particular area is, whether clay, silt, sand or gravel, and whether its natural drainage is good, poor, or non-existent. These two factors are vital to choice of an airport site which will not require expensive fill initially or rebuilding of unstable runways later.

Approximately $150,000 was saved by use of aerial photographs at one CAA airport project, according to Grieme. Estimates had indicated that it would be necessary to pay a high price to bring gravel to the airport site, until study of photographs showed that there was a large deposit beneath the surface on a nearby farm. The owner believed that the CAA representatives were crazy when they made an offer for the gravel pit which he didn't know existed on his farm. A little digging confirmed their assumption.

Use of aerial photographs supplements rather than replaces actual soil tests, Grieme pointed out. Borings are still necessary for obtaining detailed information such as depth of various strata, and bearing strength. Preliminary study of aerial photographs, however, is a more economical method of selecting a site and locating the runways on stable soil than making innumerable borings. General practice at present is to make borings only after runways have been laid out. Sometimes this results in runways which need continual patching, when aerial photographs might show that placing the runways 200 yards away would eliminate this difficulty.

Twin Cities NAA Chapter Plans Big Aero Exposition

An exposition of all phases of aviation will be sponsored by the Greater Twin Cities Chapter of the National Aeronautic Association in Minneapolis March 25 to April 1. It will be known as the First Annual Northwest Aviation Exposition.

Proceeds from the sale of floor space to exhibitors, and a nominal admission charge, will finance a campaign for an amendment to the Minnesota state constitution directing that the tax collected on gasoline sold to airplanes be used for the improvement of airports, the chapter announces. Les Schroeder, head of the newly created State of Minnesota Department of Aviation, is enthusiastic about the exposition, it adds.

Heading the committee on arrangements for the show is Tom Moore, president of the Minneapolis Civic and Commerce Association. State Representative George Matchan is secretary. The exposition will be held at the Minneapolis Municipal Auditorium.

"Our aim is to launch a series of annual aviation expositions to do for the airplane and the aviation industry what the automobile shows did for the automobile and that industry," said Moore. "The Twin Cities and the State of Minnesota have taken an advanced view of the importance of aviation in the postwar world and this exposition, we feel, will be just another step toward meeting the requirements of that age.

"The postwar period is apt to be upon us before we realize the full significance of what it will bring. Aviation will hold a predominant place in that period; there is no mistake about that. Not only will there be greatly enhanced air travel and shipping in this country but the prospects for international operations are staggering. But the public must be prepared along sound lines for what to expect. Expositions of the type we plan can be a vital factor to that end.

"We, in this part of the country, feel that it is imperative that this process of education and stimulation begin without delay. The public must be kept abreast of the times. In the Twin Cities and in Minnesota, we have taken the lead in such matters and it is our intention to remain in the front rank. Our Twin Cities Airport Commission, created by the last legislature, already is deep in plans to make this section one of the foremost air centers of the future and a system of smaller airports throughout the state is receiving study and attention. We know our exposition will stimulate this development."

The Guy on the Ground Crew

Sure, the guy who stays on the ground wins battles in the sky.

He works at an improvised airfield many miles from nowhere. He services battle-scarred planes to fly and fight again. He, *literally*, keeps 'em flying!

The skill of our aviation mechanic is one military asset the Axis can't copy. It's partly the product of a superb training program. Partly, a mechanical knack for making things work.

We like to think that there's something of this typically American genius in the way men and women of Bell Aircraft build the U. S. Army Airacobra. They started with the idea of a "cannon on wings." To make this idea work, they designed a swift, single engine, cannon bearing fighter. They're building 'em—fast!

They ask no higher praise than to be considered team-mates of the guy on the ground crew.

File this thought away for postwar reference. The men and women of Bell Aircraft will be ready for their assignments . . . ready with a war born habit of *thinking* new planes, techniques for designing, engineering and building them, a knack for making them work. © Bell Aircraft Corporation, Buffalo and Niagara Falls, New York.

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BELL *AIRCRAFT*

Niagara Frontier Division, Buffalo and Niagara Falls, N. Y.
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PACEMAKER OF AVIATION PROGRESS

BUY WAR BONDS AND SPEED VICTORY

THAT OUR COUNTRY MIGHT *Take Wing* AGAINST THE ENEMY

Curtiss-Wright built FIRST and MOST... Flying 20 seconds apart, Curtiss Fighters would encircle the globe!

☆ FIRST and MOST—a sensational claim—yet not to be disputed! Curtiss radial engine Hawks for France and Mohawks for England in 1939! Curtiss in-line engine Tomahawks in Libya and China in 1940 and 1941! The higher performance Curtiss Kittyhawks in global warfare in 1942 and in 1943 and 1944 an even more powerful fighter—the Curtiss Warhawk.

☆ The FIRST German plane fell victim to a Curtiss Fighter over France—the first Jap plane over Pearl Harbor! In fifty authenticated aerial engagements Curtiss Fighters ran up a bag of 13½ enemy planes for each Curtiss Fighter lost.

MEMBER, AIRCRAFT WAR PRODUCTION COUNCIL, EAST COAST, INC.

☆ MOST, by far! If all Curtiss Fighters built since hell broke loose throughout this world could take off at top speed from one huge base, they would form a deadly circle of flying might 25,000 miles in circumference —a tornado of power and a living symbol of American aerial supremacy that would encircle the globe.

Another Contribution of

Curtiss-Wright Corporation

AIRPLANE DIVISION

Toward Winning This War

BUFFALO • COLUMBUS • ST. LOUIS • LOUISVILLE

Captured JU-88 Reveals German Methods in Simplifying Some Manufacturing Procedure

German manufacturing methods and present-day aeronautical trends have been revealed to the Army Air Forces through study of the captured JU 88 airplane which was flown to the United States recently for testing by the A.A.F. Materiel Command at Wright Field, Dayton, O., the War Dept. announces.

Findings yielded by the study include:

A key to its versatility;

Simplification of German manufacturing procedures;

A device for blowing racks and bombs loose from the ship in an emergency;

The method employed in overcoming icing hazards;

The wide latitude possible in armament installations and use on the plane.

On the debit side, the Materiel Command technicians report:

Quarters in the JU 88 are badly cramped, the Germans apparently trying to jam everything into the smallest possible space;

Lack of meticulous machining in the housing of engine and flight instruments.

The ship apparently was designed for many tasks, varying from high altitude bombing to ground strafing, mine laying and night fighting. For these jobs the ship carries armor to protect the pilot and radio operator and some additional protective armor.

The plane ordinarily is equipped with 7.9 mm. guns. For hazardous work these can be augmented in any number of ways with additional guns and cannon.

Hollow, explosive-filled bolts are employed to hold the external bomb racks under the wings. Apparently the purpose is to allow the pilot to jettison his bombs, racks, or both, in a hurry if necessary or desirable. A press on a button blows racks and bombs loose from the ship.

Hydraulic lines are plainly marked and arrows are painted on them at intervals to indicate fluid flow, and thus facilitate repair work.

For dive bombing, a red line has been painted on the plexiglass in such a manner that when the ship is tipped over in a dive and the line is parallel with the horizon, the pilot knows the ship is in the correct attitude to release the bomb.

Of special interest is the method which the Germans have used to overcome the possibility of ice forming on the wings. The leading edge of the wing is a hollow spar, forming a duct, through which air heated by the engine exhaust stacks is forced. Air from the same source also is used to heat the cockpit. By the time the air has traveled the length of the wing, it has lost its heating qualities and is ejected through vents at the wing tips.

Examination of the instruments used in the plane has revealed that the Germans have simplified greatly their manufacturing procedures. Housings for various types of engine and flight instruments are not nearly as meticulously machined as those on AAF planes. They are inclined to be rough on the outer surfaces. This would tend to simplify and expedite manufacture.

In the appearance and construction the JU 88 is rough and ready, and a plane to inspire respect at any time, the War Dept. said.

Navy, Coast Guard Trains Blimp Crews to Spot Schools of Fish

Blimp crews are being trained in methods of recognizing, identifying, and reporting schools of fish in a wartime innovation to help West Coast fishermen increase the size of their vital hauls. Two veteran West Coast fishermen before their enlistment in the Coast Guard—Bosn. Mate 1st Cl. Clarence L. Devington, Jr., and Motor Mach. Mate 1st Cl. Lester Chiari—have been detached from their regular duties and temporarily assigned to Moffett Field, where they are instructing lighter-than-air crews in the technique of spotting the fish runs.

Dallas Exposition Is Scheduled April 7-9

Announcement is made of the Southwest Aircraft and Accessories Exposition, scheduled to be held April 7, 8, and 9, at Mustang Airport in Dallas, Texas. The Dallas Chamber of Commerce, which is sponsoring the exposition, states that several airframe, engine and propeller manufacturers have asked for space.

It is expected that some of the exhibits will include postwar experimental models, present designs that would be readily convertible to peacetime production with few modifications, and mockups of proposed types still in the blueprint stage.

The exposition, the first of a series of annual shows, will be a non-profit venture, designed to establish Dallas as a leading trade center for planes and accessories in the postwar period.

Piper Publishes New Booklet

"What Your Town Needs in the Coming Air Age" is the title of a new Piper Aircraft Corp. booklet, which forecasts the probable effects of the coming air age upon the towns of America.

Arnold Tells How Trimetrogon Maps Saved Day for U. S.

How the Army Air Forces "under pressure" photographed and charted 500,000 square miles from the early spring of 1941 until the time of Pearl Harbor, was described in a paper written by Gen. H. H. Arnold, commanding general of the AAF, read before the American Society of Photogrammetry last month in Washington, D. C.

Gen. Arnold revealed that the use, at that time, of a camera installation and photographic compilation method for map making was the start of the trimetrogon system.

"It is the clearly defined responsibility of the AAF to provide the necessary aeronautical charts for military operations," Gen. Arnold explained. "Early in 1941, it became apparent that existing map information was entirely inadequate to compile charts covering the principal transport airlanes of the Western Hemisphere. Expansion of the air arm was necessary but we were suddenly brought face to face with the fact that our country, as well as our neighbors to the north and south, did not have map coverage suitable for pilotage charts at a scale of one inch to 16 miles.

"The Air Force's first move was to plan the charting of Alaska and this assignment was handed to the First Photographic Squadron. Their problem was one of method and equipment. Tremendous areas had to be mapped in very short order— but how? Under such pressure, they developed, by the early spring of 1941, a suitable camera installation and photographic compilation method. It was the start of the trimetrogon system. By the time the Japs struck at Pearl Harbor, more than 500,000 square miles had been photographed and charts were being prepared from these photographs by the trimetrogon method."

Gen. Arnold revealed that "under the impetus of war" an area larger than the entire United States has now been photographed and nearly 1,000 photogrammetrists are compiling this photography into charts and maps.

Aero Chamber's Personal Aircraft Committee

One of the aviation groups most active in preparing for the postwar period is the Personal Aircraft Committee of the Aeronautical Chamber of Commerce. Left to right: Carl Wooten, Sales Manager of Beech Aircraft Corp.; Harry Hotchkiss, General Counsel for the Aeronautical Chamber of Commerce; Don Flower, Sales Manager of Cessna Aircraft Co.; Joseph T. Gueting, Jr., Vice President of General Aircraft Corp.; John E. P. Morgan, Manager of Personal Aircraft Department; C. J. Bruckner, President of Waco Aircraft Co., Inc.; James C. Welsch, Consolidated Vultee Aircraft Corp.; Walter B. St. John, Sales Manager, Piper Aircraft Corp.; Robert Bias, Lockheed Aircraft Corp.

Examiners Issue Feeder Line Report

(Continued from page 17)

would be granted the certificate between two comparatively large towns and a group of small towns in a given area.

The success of the purely local operation, as the examiners view it, would be based on use of single engine, one pilot operation. This would make for economies of operation outside the scope of existing carriers which are compelled to use the larger two-engine planes and two pilots. The examiners point to the successful and relatively safe operation of single engine, single pilot services in Alaska as well as the performance of All American Aviation, Inc. in its airmail pick-up operations. Before such passenger operations could be engaged in, new and relaxed safety regulations would have to be promulgated.

Important Letter

Placing considerable import on the letter of Postmaster Frank C. Walker with reference to the lack of any great need for expanding the airmail service, the examiners feel that the maximum airmail rate should be 25 cents per mile. The Post Office department letter is commented upon in part as follows: "The letter from the Postmaster General . . . with reference to the expansion of air services into small cities, does not indicate that the need for a general expansion of airmail facilities is very great. As stated in this letter, the normal trade channels have long since been covered by the general pattern of the present air transportation system, and future increases in mail volume will, for the most part, flow in these same channels. The Department, however, recognizes that the Postal Service would benefit from some potential new routes awaiting wise selection where traffic potentials indicate early self-sufficiency.

"While there would be some benefit from a general expansion of air service to include a great many small cities, there was no indication that there would be a substantial improvement in the mail service generally as a result of such expansion. On the contrary, the views of the Post Office department are indicative of the fact that the present air network, with such expansion as may appear to be indicated in individual cases, is sufficient to meet the present overall requirements of the Postal Service," one of the conclusions in the report stated.

Want Passenger Routes

Based somewhat on the views expressed in the Postmaster General's letter, the examiners feel that further extension of airmail pick-up services should not be permitted unless this operation is combined with a passenger service. Considerable evidence was adduced at the hearing tending to show that a combined airmail pick-up-passenger operation was practical. This information was based on a considerable number of "passenger psychological" tests made by All American Aviation, Inc.

Commenting further on the proposed expansion of air service to smaller towns, the examiners stated: "The prospects of any considerable volume of passenger traffic at small cities generally are not reassuring. While the information available from the experience of the presently operating carriers with respect to passenger traffic at small cities is limited because of the relatively few such cities now receiving air service, there was not evidence which would warrant the conclusion that the volume would be greater if a larger number of such cities had been served," the report stated.

The examiners called attention to the fact that "At the 18 cities under 10,000 population receiving air service in September 1940, the average number of passengers per day (including both arrivals and departures) was 4.03. However, only six were above the average and nine averaged less than two passengers. The smallest city in this group had a population of 3,050, and 12 of them were in excess of 5,000. In the 10,000-20,000 bracket the average for the 31 cities was 5.7 passengers per day, and in the 20,000 to 50,000 group it was 13.4."

With reference to potential traffic in point of number of passengers, consideration is also given to the length of the journey to be taken.

450-Mile Average

"The average passenger journey on existing air services is in the neighborhood of 450 miles," the report stated. "This is based on relating the total passenger miles to the total number of passengers."

"The air journey most frequently taken is in the neighborhood of 250 miles. The experience of bus operators indicates that journeys under 50 miles constitute a majority of all journeys. Of additional significance is the fact that the percentage of journeys under 50 miles is considerably greater in the smaller towns.

"For example, of the passengers originating at towns under 1,000, 67 percent of the journeys were for distances of less than 50 miles. For towns between 2,500-10,000 populations the percentage was 65, and in the 10,000-50,000 group it was 56 percent. The ratio diminishes as the city size increases, being 31 percent in the 100,000-500,000 bracket, and 24 percent for cities above 500,000."

"The relatively low average length of journey of passengers from small cities is particularly significant in weighing the air passenger traffic potential," the report continued. "The chief advantage of air transportation is speed. This advantage diminishes sharply as the length of the trip is reduced. In addition, frequent landings and take-offs involved in a 'short hop' service also reduce this advantage."

Favor Quick Action

If the CAB adopts the recommendation that a classification of feeder services be established and the further recommendations with respect to the expansion of air services by both existing carriers and feeder carriers, then Examiners Madden and Beitel believe that such a program should be inaugurated as soon as possible.

A recommendation that hearings be assigned in which applications for both types of service in the same general territory are involved also is contained in their report.

"Such hearings would afford the best means of weighing the extent to which expansion should be accomplished by each type of service," the report stated.

The examiners believe that applications which cover a large area of the entire country should be broken down in such a way that they may be heard in connection with the geographical area under consideration.

Discuss Fares

Examiners Madden and Beitel also called attention to what they term another important factor—the passenger fare differentials.

"On the basis of available vidence, there is little prospect of bringing the level of passenger fares below an average of 5 cents per mile; in fact there were some suggestions that a higher per-mile fare should be charged for shorter journeys. Five cents per mile is approximately three times the average fare for motor bus transportation. Many other factors which will affect the traffic potential, such as distance between the airport and city center, the time of day at which schedules will arrive and depart, the extent to which reservations will be necessary and many other details of providing the service will vary according to the locality and the city size and are difficult of appraisal on an over-all basis," the report emphasized.

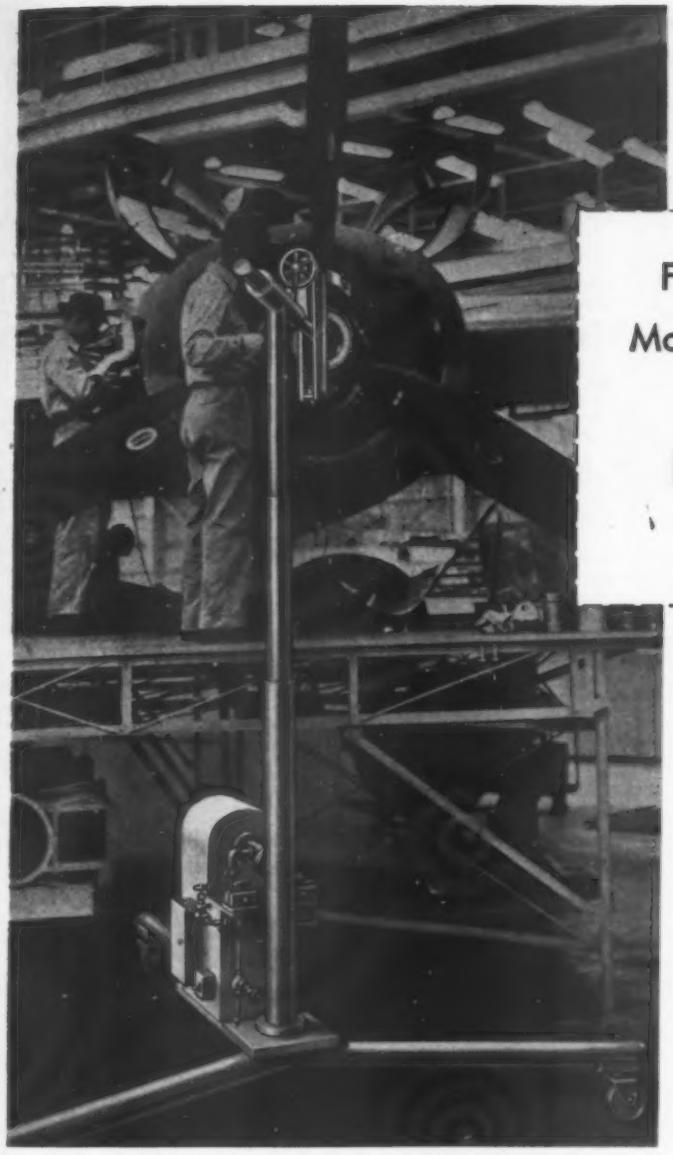
The examiners, touching directly on the application of Greyhound Corporation for some 78 routes covering 49,000 miles, stated it had not been established "that *only* a motor bus carrier could operate such an air service and thereby accomplish the advantages claimed for such a combination, hence there is no reason to recommend a change in the Board's interpretation of the Act, or to consider the necessity for, or to recommend, a change in the law."

75-Page Report

The body of the report, together with conclusions and recommendations, comprises 75 single-spaced pages. Another 20 pages are given over to tables, charts, maps and special exhibits.

One of the tables sets forth the mail pay which would be needed in a trade area service based on twin-engine, two pilot planes, plus a reasonable return on a capital investment of $600,000 with passenger revenue computed at four cents per passenger mile and express revenue at 0.175 miles per pound mile. No estimate of commercial revenues was available. The summary of the computations on this basis follows:

Average per mile	Mail pay needed, including return on investment	Cents per mile
3 passengers	$677,059	21.45
4 passengers	550,783	17.45
5 passengers	424,508	13.45
6 passengers	298,233	9.45



One man can bring the propeller from the storage room or paint rack, raise it into position, quickly align it, and slip it onto the propeller shaft. The entire operation taking approximately five minutes.

Fewer Hours in the Shop— More Hours on the Time Table with this

NEW PROPELLER POSITIONER

Another awkward job has been simplified, and a new specialized piece of equipment takes the place of brute force and makeshift tools. With the new Whiting Propeller Positioner manufactured under license from Consolidated-Vultee, one man can install a propeller in five minutes—a job that previously required fifty minutes and four men.

The Propeller Positioner provides—

1. A saving in manpower.
2. New safety for men and equipment.
3. Positive control—micrometer accuracy.
4. Universal adjustment—fits propellers to shafts in any position.

Hydraulic ram raises the propeller to any desired height. Universal mechanical controls tip it forward or backward, turn it right or left, "inch" it in or out to bring the hub into exact alignment with the shaft, enabling the propeller to be thrust home quickly and easily.

Write for information.

Propeller slides from the storage rack onto the padded arm of the propeller positioner and is locked in place. It is then ready to be wheeled to the ship.

The height adjustment made, the hub is brought into exact alignment. The ratchet lever then thrusts the propeller home on the shaft.

WHITING
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Main Office and Plant: 15647 Lathrop Ave., Harvey, Ill. Western Office: 1151 S. Broadway, Los Angeles 15, Calif. Canadian Subsidiary: Whiting Corporation (Canada) Ltd., Toronto, Ontario.

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Improvements in Lightning P-38 Give It Greater Range and Speed

Details of improvements in Lockheed's P-38 Lightning which now make it a long-range plane capable of flying over Berlin from British bases were revealed last week with War Dept. approval. The new models, Lockheed officials announced, have been coming off the assembly line for some time.

This twelfth model of the Lockheed Lightning, capable of carrying two 1000-pound bombs, double that of any single-engine fighter, packs the heaviest bomb load of any fighter-bomber.

Major improvements in the new model, which caused the Army Air Forces to greatly expand Lockheed's production of the twin-boomed, twin-engined Lightning by means of a subcontracting program enlisting major American industries, are:

Horsepower increased 30%, from 2300 to 3000.

Rate of climb increased 100% at altitude over 30,000 feet, and materially increased at all altitudes.

Built-in, bulletproof range increased 30%, permitting the Lightnings, when desired, to accompany bombers on escort missions deeper into enemy territory than any other fighter.

Service ceiling (the point where a plane is able to climb 100 feet a minute) increased to "well above 40,000 feet" with better performance all the way up. Just how high above 40,000 feet remains a military secret.

Straightaway speed increased, depending on altitude. The P-38 was the first production airplane to better 400 miles an hour.

Single-engine speed increased to over 300 miles an hour.

Combat maneuverability more than doubled by mechanical aids to the pilot, in the form of hydraulic aileron boosters combined with the old combat flap.

New unit power controls and automatic temperature controls that further simplify the operation task of the pilot.

Installation of an improved turbo-supercharger and new intercooler installations, boosting the power of the twin Allison engines from 1150 to 1500 horsepower each. This power vastly increases the Lightning's superiority over Axis fighters. When the Zero, for example, which weighs less than half that of the Lightning, is at top speed in level flight, the new P-38 is flying faster and also climbing more rapidly. The Zero's rate of climb falls off at 15,000 feet but the Lightning climbs with top efficiency to nearly twice that altitude.

On the score of versatility, the Lightning is used as a high, low and medium altitude fighter, an interceptor, a bomber escort, for ground strafing, as a tank buster, dive bomber, skip bomber, night fighter, for smoke screening and as a glider tow. In its photographic version, it is the fastest photo-reconnaissance plane of the Army Air Forces.

Lightnings were the first fighter-type aircraft to fly the Atlantic, and by using droppable auxiliary fuel tanks the P-38s are now capable of ferrying any ocean.

Armament of the new long range P-38 remains the same as predecessors, consisting of one 20 mm cannon and four .50-calibre machine guns, concentrated in the nose to give greater straight-ahead fire power over a longer range.

Externally the new P-38 appears almost unchanged.

Shown above is the twelfth improved model of the Lockheed Lightning. This new P-38 is 30% more powerful, has 30% more fighting range and climbs twice as well as its predecessors. Combat maneuverability is more than doubled. Externally it is little changed, and structurally it is the same as previous models.

New York Board of Trade Aviation Section Set Up

The Aviation Section of the New York Board of Trade has just announced its new Executive Board, on which will serve leading officials in 15 categories of the industry selected from companies located in the New York metropolitan area.

John F. Budd, editor and publisher of Air Transportation Magazine, is chairman; Dan Hawthorne Ecker, of the New York Board of Trade, secretary. Other members are:

Herbert Lyall, eastern traffic manager American Airlines, chairman of the subcommittee of airline operators; Paul E. Manheim, partner, Lehman Brothers, chairman of the subcommittee of aviation financing; Chester M. Mayer, president, Air Express Int'l Agency, chairman of the subcommittee of air shipping services; Louis de Garmo, Paris & Peart, Inc., chairman of the subcommittee of advertising and public relations.

George P. Bauer, Air Cargo, Inc., chairman of subcommittee on air commerce; Lyle C. Ray, Aviation Packaging Co., chairman of subcommittee of special services; J. T. Wilson, Int'l Business Machine Corp., chairman of subcommittee of passengers and shippers; Harold Jackson, president, William H. McGee & Co., chairman of subcommittee of aviation insurance; Casey Jones, Casey Jones School of Aeronautics, chairman of subcommittee of schools and training services.

J. E. Sitterley, J. E. Sitterley & Sons, chairman of subcommittee of publications; W. L. Baker, aviation manager, Socony-Vacuum Oil Co., chairman of subcommittee of fuels, oils and lubricants; Harry H. Gage, executive vice president, Mergenthaler Linotype Co., chairman of subcommittee of graphic arts; Leonard Jacob, II, vice president, Int'l Tel. and Tel. Co., chairman of subcommittee of communications; George Boochever, aviation attorney, chairman of subcommittee of legal services; Lloyd H. Kest, M.D., chairman of aviation medicine consultants.

Ownership of Arctic Land Seen Important In Postwar Aviation

The question of who owns the air over unchartered Arctic wastes, through which a considerable amount of postwar air transport traffic will pass on the shortest route to Asia, the East Indies, Calcutta and Moscow, has been raised recently in the Canadian press.

In an article recently published in the Southam papers, Bob Bowman stated that before long Canada may have to look to her northern boundary and decide just which Arctic lands she wishes to claim.

Stating that the shortest air routes from New York to practically everywhere in the Orient lie directly over Arctic territories now claimed by Canada on the "sector principle," Bowman pointed out that undoubtedly it will take an international air conference to establish sovereignty because some countries, including the U. S., do not recognize the "sector principle."

Under the sector principle, lands are claimed by a declaration of ownership without exploration, settlement or physical entry by the claimant.

Bowman pointed out that ownership will become a question of paramount importance when the civil airways are established because certain ground facilities and maintenance crews will have to be located along the route.

The article blames the U. S. for the delay in holding the international air conference, because of the fight between Pan American Airways, Inc. and United Air Lines, Inc. on the one hand and the 16 domestic airlines on the other over the chosen instrument policy.

Georgia Forms Commission For Aviation Development

The State of Georgia started laying plans officially last fortnight for postwar aeronautical development with the organization of the Georgia Aviation Commission.

The Commission named Cody Laird of Atlanta, president of Georgia Air Service, Inc., its chairman and Omer L. Woodson, vice president of Bell Aircraft Corp., and manager of Bell's Georgia division, vice chairman. William C. Goodloe, president of the First National Bank of Valdosta, was elected secretary.

Laird said the Commission would meet within a few weeks to initiate plans for a network of airports for postwar community service. Governor Ellis Arnall appointed the commission under a 1941 legislative act.

Other members are George R. Cushing of Atlanta, operations manager of Delta Airlines; Wallace Sheffield of Americus, operator of CAA-WTS programs at Rome and Griffin; C. L. McMillan of Cordele, commissioner of Crisp County.

New Visual Aid Guide

A new type of catalog-directory, classifying a wide range of visual aids now available for aviation and aeronautical training, is announced by the Jam Handy Organization, 2900 E. Grand Blvd., Detroit.

For war today...for all flyers tomorrow!

EVEN the best grades of aviation gasoline generally available only a few years ago wouldn't be worth a hoot to a modern plane in combat.

In fact, the performance of the mighty engines of these planes is only made possible by development of an entirely new fuel.

You know it as "100-octane aviation gas." But it is actually considerably higher in performance value—a true super-fuel and super-difficult to make.

Yet oceans of this new super-fuel *are* being made, right now. Every refinery shown here is doing its part. So far in the war, *one in every four* British and American combat planes has flown on aviation fuel from these refineries.

Known as "fluid catalytic cracking units," they are designed around special processes developed by Esso. What they do to petroleum sounds almost like magic even to an oil chemist.

It is simple truth that no process or company in the world, so far as we know, has ever surpassed the products these plants can turn out.

Today, of course, this wonderful new fuel must all go to war. But when the war is over, these new plants will still be here—your guarantee of the finest fuels in human history for your post-war planes!

THE FIRST "E" AWARDED TO PETROLEUM RESEARCH WORKERS
was made to Esso Laboratories, Bayway, N. J.

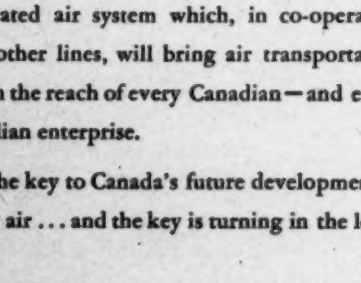
(THIS MESSAGE HAS BEEN REVIEWED IN FULL BY THE ARMY AND NAVY, WHICH HAVE NO OBJECTION TO ITS PUBLICATION)

The Key is in the AIR...

No longer need nature's barriers bar the way to the full development of Canada's natural resources. The key that will unlock the door is—air transportation.

Today C.P.A. carries on the service begun by Canada's air pioneers . . . who opened a whole new continent in Canada's Northland. At the same time C.P.A. is engaged in building an integrated air system which, in co-operation with other lines, will bring air transportation within the reach of every Canadian—and every Canadian enterprise.

Yes, the key to Canada's future development is in the air . . . and the key is turning in the lock!



Canadian Pacific AIR LINES

THE WINGS OF THE WORLD'S GREATEST TRAVEL SYSTEM

'Transportation Integration' Opposed by Sen. Truman

The ultimate of integration of ownership of various forms of transportation would be a "glorified cartel beyond the wildest dreams of the most rabid advocates of monopoly in history," Sen. Harry S. Truman (D., Mo.) charged in a speech before the Traffic Club of Baltimore, Md., during the fortnight.

The plan known as "transportation integration" has been advocated during the past year by the Transportation Association of America, reportedly a "front" for railroad interests. In discussing it, Truman drew a distinction between transportation "integration" or "coordination" at the operational level and "integration" at the ownership level. Truman endorsed operational coordination between various media of transportation but denounced integration of ownership between competing forms of transportation as a step toward the creation of one gigantic transportation monopoly. Such a monopoly, he said, "probably would be only a temporary transition to complete nationalization."

The recommendation of the Transportation Association of America, Truman reported, is: "The organization, over a reasonable period of time, of a limited number of competitive transportation systems, each authorized to develop and furnish all types of facilities and services (or combinations thereof) which are most adaptable for the efficient, economical and orderly transportation of persons and property."

TAA bases this recommendation, Truman continued, on the following conclusions:

"Common-carrier transportation is a public service and its essential facilities cannot be discontinued at will. They must be maintained either under private ownership with public regulation, or under Government ownership. When private ownership continues to be unprofitable for too long a period, Government ownership is inevitable.

"The benefits flowing from the Government's development of the waterways, highways, and airways should be made available on impartial terms to the entire common-carrier industry, as well as to private transportation.

"Fair and equitable regulation of the common-carrier transportation industry, as it is now physically and financially constituted, is not possible under the present policy of enforcing the principle of competition between modes of transport."

Truman's comment on TAA's plan was as follows:

"The recommendation and the conclusions, at first consideration, strike one as being extremely plausible. Yet, the implication and philosophy of this proposal are in irreconcilable variance with my own views of our American society.

"When we speak of integration, I think we should be clear about exactly what that means. Integration of operation or coordination between various modes of transport, through such relatively undeveloped methods as standardized and unit packaging and mechanical transhipment, is one thing, but integration of ownership is another. Because improved integration and coordination of modes of transport will result in improved service and reduced cost to the shipper and is, therefore, desirable, it does not follow that such integration can be achieved only through integrated ownership. Our entire history runs contrary to such a proposition.

"Standardization and cooperative action in operation would obviously be easier of achievement if it could be ordered by a dictator of a transportation empire rather than through the agreement and cooperation of a multitude of independent enterprises. Yet what assurance have we that the dictator of our industrial empire would ever issue such an order? Our industrial history teaches us rather that once an industrial empire has been created there is a strong tendency for its management to seek to maintain the status quo by fair means or foul rather than to embark upon new, untried, and speculative undertakings, which, after all, is the only sure means through which progress can be made . . .

"We want integration of operation, but we certainly do not want that type of integration of ownership which we have witnessed in the past of which the Van Sweringen railroad empire was an outstanding example. To add trucks, busses, barges, and air lines to such an integrated system would only multiply abuses and increase the damage to the public welfare . . .

"If we limit the number to one, we have a glorified cartel beyond the wildest dreams of the most rabid advocates of monopoly in history . . . If we limit the number to say four national systems or one system for each railroad territory, or two, or three for each territory—we still have cartel-monopolies only differing in size. Even if we limit the number to the present number of class I railroads—137—still, we would be freezing a status quo and departing from a fundamental American freedom—the freedom of opportunity. This does not mean that there should be no limit upon engaging in the business of furnishing a public transportation service. We went through that period of development where the lack of limits and the abundant enterprise of our forefathers created more facilities than the volume of business required and we actually got poorer service. We solved this problem by regulations and the device of issuing franchises on the basis of public convenience and necessity. I certainly do not advocate doing away with this kind of limitation. This is neither a numerical, nor a static limitation, but, in theory, at least, is sufficiently flexible so as to assure competition and freedom of opportunity and to prevent the chaos, confusions, deterioration of quality of service and even financial losses that attend uncontrolled springing up of enterprises offering a public transportation service."

Ballard Moves Offices to N. Y.

Ballard Aircraft Co., Elkhart, Ind., and Arthurdale, W. Va., has moved its general offices from Elkhart to 331 Madison Ave., New York City.

For Airline Information use the book

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OWI Report Praises Naval Air Transport's Efficient Job

NAVAL Air Transport Service has not only expanded the scope of its operations and the size of its fleet many times during the past year but it "has achieved an efficiency and dependability equal to that of the pre-war civil airlines," asserts the Office of War Information in a current report on the development of Naval Air transport.

With the aid of five commercial airlines, the Navy has developed a network of air routes over more than 65,000 miles carrying supplies and officials to every unit of the fleet. Many thousands of additional miles are flown on emergency missions.

The Navy is continuing to expand its Transport Service which now comprises 10 full transport squadrons, comparable to the divisions of an airline, several ferry units and extensive contract operations by Pan American Airways and American Export Airlines. The continually enlarging training program is partly conducted by Pennsylvania-Central Airlines, American Airlines, United Air Lines, Pan American and American Export.

During the last half of 1943 this expansion amounted to a 70% increase over the first six months of the year, with still greater expansion promised during 1944. Today NATS carries 22,500 priority passengers a month for an average trip of more than 1,200 miles per passenger. About 8,300,000 pounds of cargo and mail are transported monthly, while NATS-operated aircraft fly some 3,600,000 plane-miles monthly.

The Transport Service, under the direction of Captain D. F. Smith, USN, in the office of the Chief of Naval Operations, is a highly decentralized organization. Three Wing Commanders are charged with virtually complete authority over the operations in the area to which they are assigned since they are responsible not only for the squadrons under them but for the employment of the contract carriers to fill the needs of the area.

The Atlantic Wing Commander has charge of flights on the East Coast and to the British Isles, Iceland, South America and Africa. The West Coast Wing Commander is in charge of transcontinental NATS flights from the East Coast to San Francisco and from the West Coast to Alaska and the Aleutians. Over the latter routes, Douglas R4D and R5D planes, specially equipped and winterized, are flown by crews trained to cope with weather hazards of the area between the Naval Air Stations at Seattle and Kodiak and the advanced Aleutian Bases.

The Pacific Wing Commander operates flights from the West Coast to Hawaii; from Hawaii to the Central, South and Southwest Pacific war theatres and to Australia and New Zealand. "From this area comes the greatest demand for NATS service," the report states, "and the tempo of that demand is increasing."

The recently established Naval Air Ferry Command is under a fourth Wing Commander, who controls the delivery of new aircraft from the factories and shifts warplanes from one zone to another.

The commercial airlines are praised, in the report, for their assistance to NATS in its pioneering and development of new airways. According to Navy spokesmen, "Remote outposts have been used for

Some idea of the tremendous amount of gasoline needed to keep Naval Air Transport Service planes flying is given in the above photo, taken at a Brazilian base.

operations bases and to provide valuable data on weather. Mooring, landing and refueling facilities have been established in spots which no aircraft had touched before the war. These can be put to good postwar use by civil aviation."

Although the report gave no figures on the number of transport planes used by WTS, it stated that there are almost equal numbers of sea and landplanes and that about two-thirds of all the planes are used in trans-ocean service. At present, aircraft operated by NATS include: the R3D-1, R4D-1 and R5D-1, which are the Army's C-47 and C-53; the Consolidated Coronado PB2Y-3R, Sikorsky S-44 or JR2S-1, Martin PBM-3R, Boeing 314 Clipper, Curtiss-Wright Commando, Martin Mars and several other types acquired from the airlines. In addition, some Consolidated Liberators and new stainless steel Budd transports, the RB-125, are soon to be acquired. NATS anticipates expansion of its Ferry Command to overseas bases as such large aircraft as the PB4Y and the B-24 are delivered in quantity.

"The majority of the aircraft available to NATS are not the most efficient transport types," the Navy states. "Conversion of combat patrol bombers, both landplanes and seaplanes, to transports has in general not been altogether satisfactory. However, while production facilities of the country are quite properly devoted almost exclusively to manufacture of combat aircraft, the NATS will continue to carry loads in any equipment available."

Among the critical cargoes transported by NATS in addition to passengers are airplane tires, submarine replacement parts, detachable fuel tanks, blood plasma. Also carried are mental cases and wounded men. Strategic materials which fill the NATS planes on their return flights from overseas include industrial diamonds, mica, beryl ore, rubber, quartz crystals, platinum, quinine, totaquine and black talc.

NATS priorities, space control and direction of general policy channel through the Naval Air Priorities Office. The Air Cargo Priorities Section of the War Production Board estimates that during 1943 strategic materials transported by air moved six times faster and twenty times more safety than by surface carrier.

Improved methods of cargo packing and new techniques of handling developed by the Navy have enlarged the load capacity of cargo planes to almost 100% and have effected a savings of more than $2,000,000 annually. NATS anticipates that these advances will prove a great benefit to the commercial airlines after the war.

Another service NATS has rendered to air transportation is in its capacity as a clearing house for the best airlines operating procedures. Gathering together technical knowledge from all the airlines, NATS has compiled operating manuals for both seaplanes and landplanes. "It is hoped that the Navy's findings along these lines will stand commercial operators in good stead in the increased transport flying that is sure to follow the war," the Navy says.

Electronics Explained in Disney Films

Early in the war, the Army Air Forces decided that to make precision bombing fully effective, the pilots, crews and maintenance personnel of the Air Forces must be fully familiar with the intricacies of the electronic autopilot.

New in principle and operation, the device was unfamiliar to the men who were to use it, and the crews who were charged with maintaining the rigid service required by the Air Force. First step taken to "educate" the pilots, bombardiers and ground crews was the establishment of a school in Minneapolis operated by instructors supplied by Minneapolis-Honeywell Regulator Co. Almost simultaneously the Company established a Field Service Division and sent its men to major U. S. air bases and eventually to every major fighting front on the globe. Today this Division totals more than 130, with men in England, India, China, Africa, Australia and in many of the outlying posts of the world's battlefronts. Some have been officially commended for outstanding devotion to duty, many have gone on operational missions to instruct in and check the instruments under their supervision . . . two have died in line with their work.

Final step in the educational program was the production of 11 motion pictures produced for the Air Forces by the Walt Disney Studios working under the technical direction of Minneapolis-Honeywell engineers. Today these pictures are used, together with hundreds of others, to train AAF personnel in the use and maintenance of the many intricate devices being used in air warfare. This training program is conducted at many air bases, both here and abroad, by the Air Forces Training Command.

Dealing with a subject as complicated as electronics and an instrument as precise as the autopilot it was felt wise to begin at the beginning and so the Disney films start out with a simplified explanation of electricity and carry this through basic electronics. From this point on, the films become more specific and are applied directly to the autopilot ending up with a confidential instruction film showing the full bombing procedure.

Fireside to Firing Line

It's a long way from fireside to firing line. Especially long for a radio set. For when you take this coddled precision instrument away from the peace and calm of a living room and stick it in a mobile unit at the front, you're really putting it "on the spot." Jolts, jars, concussions and extremes of temperature are the common lot of radio and electronic equipment in military service.

Fortunately, this transition was not as abrupt as it might have been, for Delco Radio technicians had tackled and solved similar problems in making automobile radios practicable. Vibration and shock . . . heat and humidity variations . . . electrical interference . . . shaking and bumping—all these obstacles were overcome one by one through the ceaseless experimentation and research of radio scientists.

With the conquest of the foes of *radio in transit* came far greater benefits than better entertainment. Years ahead of the second World War, the Delco Radio Division had solved many of the problems which inter-vehicular military radio would face. Years ahead of time, the "spirit of perfectionism" had prepared vehicular radio for its vital role at the battlefront.

Let's All Back The Attack!

BUY WAR BONDS

Delco Radio
DIVISION OF
GENERAL MOTORS

Ramp Weather Protector

Three enterprising mechanics at Washington National Airport have come up with this "tent," which keeps them warm and dry as they pump water from fuel and battery pits during rainy weather. Built on wheels, the protector incorporates a gasoline pump and electric lights. It may be used during the blistering summer months as an umbrella. The mechanics, Gardner Rogers, Richard Collins, and Warren Johnson, built the device from salvaged materials.

Parts Manufacturers Lay Reconversion Groundwork

A drive towards orderly reconversion to the manufacture of peacetime products has been outlined by the newly elected officers of Aircraft Parts Manufacturers Association. These postwar plans, involving more than a half-billion dollars, also affect the more than 200,000 workers in the parts plants, the Association states.

The new officers of the Association are: T. T. Arden, Grayson Heat Control, re-elected president; C. L. Tanner, Hard Chrome Eng. Co., vice president; H. G. Bley, New Plastic Corp., secretary; H. C. Thomas, Clarke Aero-Hydraulics, treasurer. Members of the Executive Committee are: F. W. Wilkins, United Aircraft Products; W. C. Buchterkirchen, Gay Engineering Corp.; G. W. Stratton, Raymond De-Icer Co.; T. E. Colvin, Aircraft Accessories Corp.; Morris Pendleton, Plomb Tool Co. The foregoing are also members of the new board of directors which includes C. J. Amick, Century Metalcraft Corp.; Edmond R. Doak, Doak Aircraft Co.; Lawrence A. Harvey, Harvey Machine Co., P. D. Hileman, Thompson Products, Inc.; Arnold Johnson, Weber Showcase & Fixture Co.; and Hugh L. Clary, Multiplier Co.

Army Cuts Schools

(Continued from page 20)

Ponca City School of Aero., Ponca City, Okla.
Portland Flying Service, Prineville, Ore.
Pueblo Air Service, Inc., Pueblo, Colo.
Racine Flying Service, Inc., Racine, Wis.
Rochester Aeronautical Corp., Rochester, N. Y.
Scranton Airways, Scranton, Pa.
Southern Airways, Inc., Greenville, S. C.
Southern Airways of Danville, Danville, Va.
Southern Airways Sales Co., Atlanta, Ga.
Southwest Airways, Inc., Phoenix, Ariz.
Spartan Aircraft Co., Tulsa, Okla.
Sundorph Aeronautical Corp., Cleveland, Ohio
Tri-Cities Aviation School, Inc., Endicott, N. Y.
Roscoe Turner Aero. Corp., Indianapolis, Ind.
Tuskegee Institute Flying School, Tuskegee, Ala.
Wichita Falls Air Transport Co., Inc., Wichita Falls, Tex.
E. W. Wiggins Airways, Inc., Concord, N. H.
L. Miller Wittig, Hibbing, Minn.
Wolverine Aviation, Youngstown, Ohio

AAF-WTS Flight Indoctrination Centers

Region I

College used by AAF	*Flight Contractor Used by CAA-WTS*	Basic Quota
Colby College, Waterville, Me.	Airways, Inc., Waterville, Me.	100
Springfield College, Springfield, Mass.	Hermann Flying Service, Springfield, Mass.	100
Mass. State College, Amherst, Mass.	Thor Selberg, Indv., Westfield, Mass.	150
St. Anselm's College, Manchester, N. H.	Mr. Arthur A. Goldsmith & Daisy B. Goldsmith (Part.) Nashua, N. H.	40
University of Buffalo, Buffalo, N. Y.	Buffalo Aeronautical Corp., Buffalo, N. Y.	100
Canisius College, Buffalo, N. Y.	Beacon Flying Service, Inc., Clarence, N. Y.	70
State Normal School, Oswego, N. Y.	Safair, Inc., Fulton, N. Y.	60
Niagara University, Niagara, N. Y.	Buffalo Aeronautical Corp., Lockport, N. Y.	50
Rochester Bus. Institute, Rochester, N. Y.	Hylan Flying Service Inc.	20
	Holderman Air Service, Inc.	20
	Rochester Aeronautical Corp.	20
	Page Airways, Inc.	20
	Genesee Airport, Inc., Rochester, N. Y.	20
Syracuse University, Syracuse, N. Y.	Seneca Flying School, Inc., Syracuse, N. Y.	420
Pennsylvania State College, State College Pennsylvania	New Way Flying System, Bellefonte, Pa.	120
Geneva College, Pittsburgh, Pa.	Graham Avia. Fly. Schools, Inc., Butler, Pa.	60
Clarion St. Teach. College, Clarion, Pa.	Graham Avia. Fly. Schools, Inc., Clarion, Pa.	60
Lafayette College, Easton, Pa.	Braden's Flying Service, Easton, Pa.	60
Bucknell Junior College, Wilkes-Barre, Pa.	Smith Flying Service, Forty-Fort, Pa.	50
Gettysburg College, Gettysburg, Pa.	Gettysburg Sch. of Aero., Gettysburg, Pa.	110
Duquesne University, Pittsburgh, Pa.	Pittsburgh Inst. of Aero., Greensburg, Pa.	70
Grove City College, Grove City, Pa.	Wilson Aviation, Grove City, Pa.	40
State Teachers College, Slippery Rock, Pa.	Wilson Aviation, Grove City, Pa.	100
St. Vincent's College, Latrobe, Pa.	Carroll School of Aviation, Latrobe, Pa.	70
Allegheny College, Meadville, Pa.	Graham Avia. Fly. Schools, Inc., Meadville, Pa.	80
Susquehanna University, Susquehanna, Pa.	Milton Sch. of Instrument Fly., Milton, Pa.	60
Williamsport Dickinson Sem., Williamsport, Pa.	Lycoming Airways, Montoursville, Pa.	70
Dickinson College, Carlisle, Pa.	Taylor Aviation, New Kingston, Pa.	140
Albright College, Reading, Pa.	Reading Aviation Service, Reading, Pa.	60
Kutztown State Teach. Col., Kutztown, Pa.	Reading Aviation Service, Reading, Pa.	60
University of Vermont, Burlington, Vt.	Fli-Rite School of Aviation, Burlington, Vt.	200
Norwich University, Northfield, Vt.	East Coast Airways, Inc., Montpelier, Vt.	120
Lynchburg College, Lynchburg, Va.	Lynchburg Air Trans. & Sales, Lynchburg, Va.,	40
West Virginia Wesleyan, Buckhannon, W. Va.	Brinckerhoff Flying Serv. Inc., Buckhannon, W. Va.	50
West Virginia University, Morgantown, W. Va.	West Virginia University, Morgantown, W. Va.	60
Marietta College, Marietta, O.	Parkersburg Fly. Serv. & Avia. Schools, Inc., Parkersburg, W. Va.	50

Region II

University of Tampa, Tampa, Fla.	Ludw'g School of Aviation, Tampa, Fla.	40
Elon College, Elon College, N. C.	Burlington Flying Service, Burlington, N. C.	50
King College, Bristol, Tenn.	J. Louis Hilbert, Indv., Johnson City, Tenn.	34
Cumberland University, Lebanon, Tenn.	Nashville Flying Service, Lebanon, Tenn.	30

Regior III

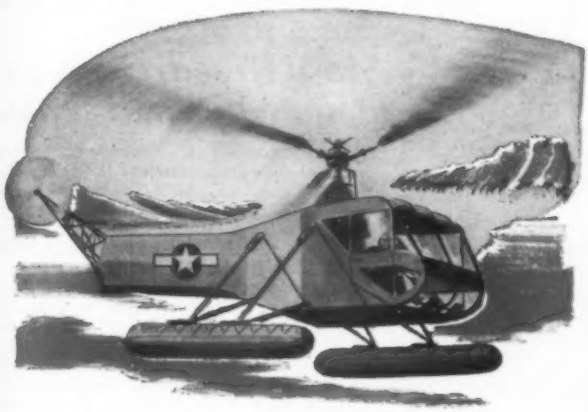
Beloit College, Beloit, Wisconsin	Fred Machesney, Rockford, Ill.	60
Transylvania College, Lexington, Ky.	Lexington Flying Service, Inc., Lexington, Ky.	40
Michigan College of M. & T., Houghton, Mich.,	Fontana School of Aeronautics, Laurium, Mich.	80
Albion College, Albion, Mich.	Perkins Flying Service, Marshall, Mich.	50
University of Minnesota, Minneapolis, Minn.	Lysdale Flying Service, Minneapolis, Minn.	100
Macalester College, St. Paul, Minn.	Lexington Flying Corp., New Brighton, Minn.	60
St. Cloud State Teachers Coll. 58, St. Cloud, Minn.	Van's Air Service, St. Cloud, Minn.	50
St. John's University, Collegeville, Minn.	Van's Air Service, St. Cloud, Minn.	60
State Teachers College, Moorhead, Minn.	Dakota Skyways, Inc., Fargo, North Dak.	100
University of North Dakota, Grand Forks, N. D.	Lester O. Jolly Flying School, Grand Forks, N. Dak.	150

(Turn to page 46)

Franklin

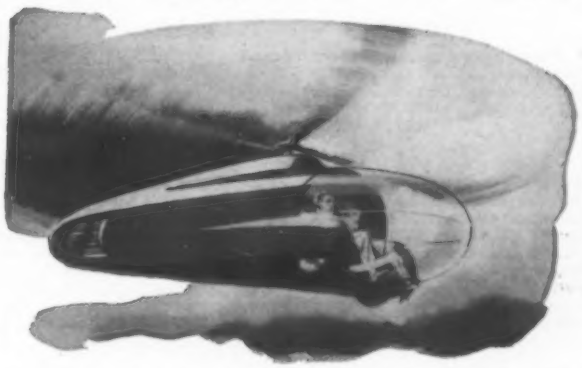
★ FOR ARMY HELICOPTERS *Now...*
★ FOR *Your* POST-WAR HELICOPTER

FRANKLIN engines have been chosen by the Army Air Forces to power the Sikorsky-designed helicopters to be built



by Nash-Kelvinator. The selection of Franklins for this assignment is a logical one—for Aircooled Motors has been making experimental Franklin helicopter engines for almost four years—longer than any other engine manufacturer. It was a Franklin which powered the Sikorsky ship that broke the world's helicopter endurance record in 1941. It was a Franklin which powered the Piasecki PV-2, latest helicopter to make a public flight. Other Franklin engines are furnishing power for several experimental helicopters you'll be reading about soon.

When the war ends Franklin will have an unsurpassed record of actual helicopter engine production. And meanwhile, Franklin engineers will be working steadily to bring today's finest helicopter

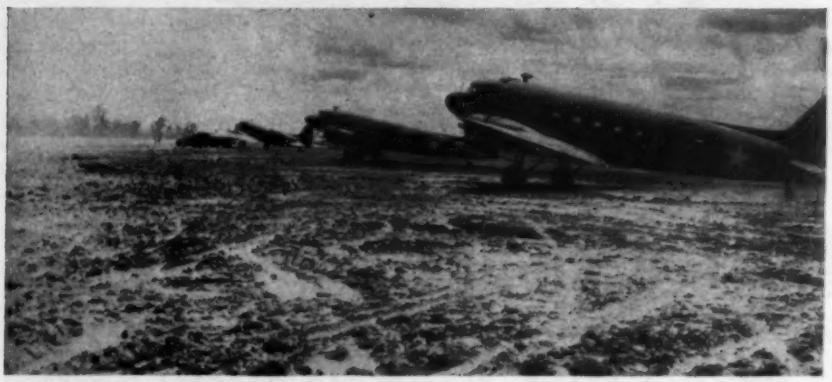


engines to even higher levels of performance. Look to Franklin to power your post-war helicopter.

AIRCOOLED MOTORS CORP. ★ SYRACUSE, N. Y.

Franklin

Monsoon Season on the Burma Air Road



During monsoon season, the areas surrounding the runways used by planes of the India-China Wing of the Air Transport Command are a sea of mud and water, as shown in the above AAF photo. The Army last fortnight released a few details of the heroic work being done by Army and airline pilots in hauling cargo "over the hump" into China.

Army Cuts Schools

(Continued from page 44)

College used by AAF	*Flight Contractor Used by CAA-WTS*	*Basic Quota*
Jamestown College, Jamestown, N. Dak.	Jamestown Flying Service, Jamestown, N. Dak.	120
Akron University, Akron, O.	Akron Airways, Inc., Akron, O.	50
Hiram College, Hiram, O.	Horn's Flying School, Inc., Chagrin Falls, O.	50
Penn College, Cleveland, O.	Aeroways, Inc., Cleveland, O.	136
Western Reserve University, Cleveland, O.	Sky-Tech, Inc., Cleveland, O.	100
Milwaukee State College, Milwaukee, Wis.	Midwest Airways, Inc., Cudahy, Wis.	40
State Teachers College, Eau Claire, Wis.	Eau Claire Flying School, Eau Claire, Wis.	60
Oshkosh State Teachers Coll., Oshkosh, Wis.	S. J. Wittman (Indv.), Oshkosh, Wis.	80
State Teachers College, Superior, Wis.	Enger Flying Service, Superior, Wis.	50
Carroll College, Waukesha, Wis.	Spring City Flying Serv., Inc., Waukesha, Wis.	40
Central State Teachers Coll., Stevens Point, Wisconsin	Albert E. Padage, Indv., Wisconsin Rapids, Wis.	70
Region IV		
Henderson State Teachers Coll., Arkadelphia, Ark.	Franklin School of Aviation, Arkadelphia, Ark.	100
Ouachita College, Arkadelphia, Ark.		
Oklahoma City University, Oklahoma City, Okla.	Southern Aviation, Oklahoma City, Okla.	100
Region V		
Iowa Wesleyan College, Mount Pleasant, Ia.	Montheir Flying Service, Mount Pleasant, Ia.	80
Fort Hays Kansas State Col., Hays, Kans.	P-T Air Service, Inc., Hays, Kans.	80
Kansas St. Col. of A. & A.S., Manhattan, Kans.	Kansas Aviation Company, Manhattan, Kans.	120
Municipal U. of Wichita, Wichita, Kans.	Harte Flying Service, Wichita, Kans.	100
Jefferson College, St. Louis, Mo.	St. Louis School of Aero., Robertson, Mo.	60
Hastings College, Hastings, Neb.	Beebe Air Service, Hastings, Neb.	40
University of Nebraska, Lincoln, Neb.	Lincoln Airplane & Fly. Sch., Lincoln, Neb.	84
Black Hills Teachers Col., Spearfish, S. Dak.	Clyde W. Ice (Indv.), Spearfish, S. Dak.	60
Region VI		
University of Nevada, Reno, Nev.	Reno Sky Ranch, Inc., Reno, Nev.	100
Utah State Agricultural Col., Logan, Utah	Cache Valley Flying Service, Inc., Logan, Utah	150

Breaks Records

With the exception of last February, the Chance Vought Aircraft Division of United Aircraft Corporation, either equaled or exceeded its quotas every month of the year, Rex B. Beisel, general manager of the division stated. Output for the last half of 1943 came within a few planes of doubling that for the first six months. As 1943 drew to a close, the 2,000th Corsair moved from the assembly line.

Urges Structural Flight Research

The need for more structural flight research, the purpose of which is to determine the magnitude and frequency of various stresses or loads to which the airplane structure is subjected in flight, was pointed up by W. Lavern Howland, Lockheed Aircraft Corp. engineer, at the War Engineering meeting of the Society of Automotive Engineers this week in Detroit. Many of the existing design load requirements for modern airplanes are based to a large extent on results obtained from acceleration measurements on airplanes of 10 years ago, Howland claimed.

ATC's India-China Wing Cited for Cargo Flights

A citation by the President, as public evidence of deserved honor and distinction, has been presented by General H. H. Arnold to personnel of the India-China Wing of the Air Transport Command. The citation reads:

"India-China Wing, Air Transport Command, is cited for outstanding performance of duty in action during December, 1943. In that month, the India-China Wing exceeded substantially the tonnage target set for transportation of vital supplies to China by air. The record was made on high level air routes over impassable terrain under treacherous weather conditions and through territory patrolled by enemy fighter aircraft. Only fine teamwork and outstanding devotion to duty by the entire personnel of the command made this accomplishment possible. The achievement reflects highest credit on the military forces of the United States."

Since closing of the Burma Road by Japanese conquest in 1942, Air Transport Command operations have been the only supply line between China and the other United Nations. Now, after two years, Air Transport Command carries by air between India and China more lend-lease cargo each month than formerly was carried over the Burma Road each month, the War Department states.

Aero Researchers Are Lauded by Gen. Arnold

Theorists and experimenters in areonautical research, unswayed by scoffing and mistrust on the part of the public, gave the United States the airplanes "with which we have made the greatest air force the world has ever seen," Gen. H. H. Arnold stated in his acceptance of an Honorary Fellowship in the Institute of the Aeronautical Sciences, presented at the Honors Night Dinner on January 24.

Unable to attend in person, his reply to the presentation was read by Maj. Gen. Frank O'D. Hunter, Commanding General, First Air Force.

"Air Force men fought long and patiently, or even, impatiently, against great odds, for that risky innovation, airpower," he continued. "There was never any doubt in my own mind that the protagonists of airpower were right and must in the long run win. I do not credit this to some extraordinary judgment or vision of mine. I think I may cerdit it to a just appreciation of the skill, intelligence, and courageous determination of those workers in the aeronautical sciences who every year improved and advanced the design and construction of the first flying machines.

"In their laboratories and wind tunnels, in their workshops and hangars, they were finding the answers to one after another of the difficulties that, long after flight had been proved possible, gave people the false impression that flight was impractical, that, from the military standpoint, the airplane was unreliable.

"In every flight, and particularly in every fight, we read large our debt to those aeronautical engineers who have seen to it that we are better than our enemies, not merely man for man, but plane for plane."

For 75 years, Western Electric has been a leader in the field of communications apparatus. That is one reason why

the nation's largest producer of electronic and communications equipment for war today is . . .

75TH ANNIVERSARY

Western Electric

Distributed by Graybar

Kansas City Meeting

(Continued from page 22)

airline traffic and for smaller fields. To provide an airline pilot with sufficient length for a safe single-engine takeoff in case a second engine fails on the take-off, runways should be at least 4,000 feet long, he said. In addition, there should be a clear space after the takeoff in case the pilot needs to bring his plane down.

For smaller fields, designed for private pilots and single-engine planes, runways from 1,500 to 3,500 feet long are sufficient, Inwood believes. The runways should be paved, from 100 to 150 feet wide, preferably.

Care should be taken in planning the airport to obtain a site as free as possible from obstructions in the path of landing and taking off planes. "Should the removal of existing obstructions prove impractical," Inwood said, "it is very often possible to miss the obstruction by swinging the direction of a runway only five degrees."

One major consideration in planning an airport is the possibility of expansion in later years. "The most logical procedure after the selection of the site has been definitely made is to draw up a master plan which would provide eventually for runways as long as necessary, of which only a portion would be built at the time.

"Too often in the past, airports have grown, like Topsy, with no comprehensive plan for expansion. This method eventually costs the community much more than if they had started on a smaller scale with a plan that allowed for economical expansion."

"There are all too few airports in cities of from 1,500 to 15,000 population" Donald E. Pratt, manager of the Hays, Kansas, Municipal Airport and president of P-T Air Service, Inc. told the afternoon meeting. "It is up to these smaller municipalities to provide the airports necessary to really sell the public on the forthcoming air age throughout the country," Pratt stated.

The afternoon session was given over largely to the practical side of operating an airport and the financing of original construction.

Alfred MacDonald, director of the Board of Park Commissioners, Wichita, Kan. speaking on "Financing Municipal Airports" declared: "Unless there can be worked out a practical, long-range and financially-sound program for developing airports and for maintaining them, it is doubtful if aviation can grow as it is planned today. Unless such a program for financing airport construction and maintenance is fair to the public, fair to the users of the airport and fair to the proprietor of the airport, which in most cases is a municipality, it may be that the airport situation, or rather the lack of airports, will become the 'bottle-neck' in the expansion of postwar aviation."

MacDonald touched on the legal right of municipalities to acquire land for airport sites and to use public funds for financing the capital elements of airport construction. He cited some state court opinions which appear to give the municipality considerable leeway in the matter of original capital investment, stating "The rule seems to be clearly held that municipalities have the right to own, develop and maintain municipal airports as public enterprises."

The speaker said that while the taxpayer might be quite willing to vote bonds for the purchase of the site and the construction of the airport itself "because the ground becomes a permanent asset to the city" his attitude may be entirely different when it comes to paying taxes for airport maintenance and upkeep.

"I think the average taxpayer expects the airport to be self-sustaining or almost self-sustaining," MacDonald declared.

MacDonald said he felt the municipality should look to the Federal government for help in the development and operation of municipal airports. He said that they not only served the public in making possible the rapid transportation of goods and passengers but that from a national viewpoint they had proved to be indispensible to the national defense program.

"Airports may well be the limiting factor in the growth of private ownership of aircraft," said John Groves, secretary, Committee on Airport Development Program, ATA and former manager of the Washington National Airport. "Private owners will demand more airport facilities or they will not purchase an airplane," Groves said.

Suggesting a return to the "Air Park" thinking of 10 years ago when it was proposed to make the airport the center of a town's recreational activities, Grove listed the various types of services and concessions from which revenues could be obtained for the operation of the airfields.

"The theory that aviation should be burdened with the whole or major part of the cost of airport operation through high rentals, landing fees and business privilege assessments is a fallacy in that it tends to advance the costs of aeronautical service to the public and results in diminished use of the airport and general retardation of aviation progress," Groves declared.

Groves said the Washington airport showed total revenues of $403,000 the first year of operation of which airlines and other aeronautical interests contributed $135,000 and other activities, such as concessions, restaurants etc., paid $265,000. Operating costs were $360,000 leaving a profit of $43,000 which "did not accomplish much toward amortizing a $16,000,000 investment." He said a study was now being made to establish a standard formula for use by airports throughout the country on charges and fees for various types of flying operations, including those of the transport airline.

At the banquet meeting in the President hotel Monday night, Rep. Jennings Randolph, (D) W. Va. challenged the delegates to help bring about legislation now that would make possible the inclusion of airport construction in the postwar public works program. Claiming that CAA had its sights too low in planning for 6,000 fields, Randolph advocated 12 or 15,000 in a reasonable period after the war. Citing the example of Morefield, W. Va., which built an airport with 2,400 and 2,700 foot runways at a total cost of $492 as an example, Randolph urged the delegates to analyze the particular and peculiar needs of their own communities and then get a community spirit aroused that would see the project through to completion.

Peacetime use of the Army's $400,000,000 airport facilities for commercial and civilian flying was predicted by Capt. Frank E. Lair, Assistant Army Air Forces representative, North American Aviation, Inc. of Kansas City, Kans. He said the airfields had been built with the advice, as to location, of CAA after the Army had named the strategic defense areas.

The "turf airport" received considerable attention both in the speeches and the discussions. An enlightening paper on this subject was read by Dr. John

(Turn to page 50)

Speakers at the Mid-West Airport Planning conference included, left to right, seated, Donald E. Pratt, president of P-T Air Service, Hays, Kansas; T. E. Flaherty, Kansas City, CAA regional airport supervisor, 5th region; Capt. Frank E. Lair, AAF, North American Aviation, Kansas City; Alfred MacDonald, director of parks and airports, Wichita. Standing, left to right, are W. T. Brown, commissioner, Kansas City municipal airports; S. E. Travis, Jr., CAA regional airport supervisor, 4th region, Ft. Worth; O. E. Crossey, conference chairman, Kansas City, and L. R. Inwood, executive assistant, TWA, Kansas City.

OFFICIAL U. S. NAVY PHOTO

Out of the Mouths of Ugly Ducklings

FROM ATTU to Africa, from Kiska to Sicily, from Munda to New Britain, LSTs, vital units of America's great fleet of landing craft, have won laurels in a new art of warfare.

These "Ugly Ducklings," as they are known affectionately to the men who work them beachward in the face of enemy gunfire, are one of the most startling types of ship the war has produced.

Born of American ingenuity along the banks of the Mississippi, the LST (Landing Ship, Tank) was only on the drawing boards a mere two years ago. The first model was completed in October, 1942. Yet so vital are these "Ugly Ducklings" in today's amphibious warfare that production of landing craft has been given an overriding priority over all other urgency programs.

Knowing the vital importance of absolutely accurate navigation and trustworthy steering, our Navy equips every LST with the Sperry GYROTRONIC Compass, the famous Mark XIV. And as a result of experience gained in Africa and in the Pacific, the Sperry Electric Follow-Up Steering Control is specified for those currently being delivered to the Navy.

Such large numbers of these two precision devices (designed, developed, and manufactured by Sperry) are now being used that no one company can possibly produce them all. So, Multiscope, Inc., of Coffeyville, Kansas, is making the complete Steering Control for Sperry under subcontract, while the Dodge Division of Chrysler Corporation is helping to supply quantities of Sperry Gyro-Compasses, under prime contract to the Navy.

TODAY, this minute, these gallant LSTs are making history . . . landing tanks and men on enemy-held beaches . . . and landing them exactly where and when they are scheduled to be landed.

SPERRY GYROSCOPE COMPANY, INC.

BROOKLYN, NEW YORK

Kansas City

(Continued from page 48)

Monteith, Jr., Principal Agronomist, U. S. Army Engineers.

"After allowances are made for all the limitations of turf for airports, there still remains many possibilities for the effective use of turf in the planning of the postwar airport programs," Monteith declared. "Much of the traffic, no doubt, will be in light planes and the heaviest planes, like the best railroad trains, will not schedule stops at all towns enroute, regardless of the presence of heavy pavements."

Monteith gave the conference definite information regarding preparation of the sub-soil, grading, drainage, types of grasses to be grown and fertilizers to be used. He said he felt that the turf airport could well be used by smaller planes and that it might well meet the needs of resort areas or areas where the fields would be subjected to only seasonal use.

One of the most colorful speeches of the conference was delivered by Roscoe Turner, president of the National Aviation Trades Association and the Roscoe Turner Aeronautical Corporation. The noted flyer gave the conference a "down to earth" talk. He cautioned the mayors that while they might be able to get an airport constructed, their troubles would begin if the undertaking was not properly set up to be largely self-supporting.

"Analyze your airport needs realistically," Turner told the delegates. "We in the aviation industry are a crazy gang. Some of us become a bit over enthusiastic. Others are the voice of prophesy. Gen. Mitchell was a prophet but sacrificed a career. Some of us have been so fortunate as to live through the ups and downs of aviation which all of us now realize is coming to be full grown."

As evidence of the new thinking in Washington, Turner said a prominent official had told him recently: "The Army and Navy can't go anywhere without the air force. The air force can go anywhere without the Army or Navy." Turner however cautioned that all components of the military establishment should and must work together.

Turner said he knew of some towns that were planning, even with CAA advice, $1,500,000 airports when the town isn't on the main airways or cannot hope to be on one. He asked the mayors whether they would be able to maintain an airport where the electric bill probably would run to $1,500 a month, and where other maintenance service would be proportionately high.

"I know a few airlines that stopped at a town for a few times but when the passengers did not show up, they didn't bother to stop anymore," he stated. "What we need is more airports and less Idlewild airports. Remember the local operator, not the mayor, is the person who is going to develop the local airport."

The tremendous and growing importance of aviation education was explained by Dr. Frank W. Hart, of the University of California who is educational consultant to CAA.

"We must," he declared "keep abreast of our new three dimensional world. Aviation has already greatly stimulated aviation interest in teen age students. In the future, with 30 million school children receiving valuable aviation education, we can develop many far reaching programs," the educator declared.

As post roads followed the Revolutionary war and as paved roads followed World War I, construction programs, including aviation facilities, will follow World War II, Hart said.

Hart told of the CAA educational program for both teachers and scholars and visioned the day when classes necessarily need no longer be conducted in marble halls but when Juniors and Seniors, in school owned or operated planes, would be taken on field trips and thereby, through visual education, accomplish in a few hours what days of book learning would otherwise require.

Some lively discussions followed the conference speeches. At the close of the conference, Chairman Crossey outlined what he felt were the important points emphasized during the two day session. They follow:

1. It is necessary, in a three dimension world, to locate at least one airport in every community. The size and need should be carefully planned.

2. Airports should be selected from the standpoint of safety and convenience.

3. There is a definite need for a plan that will lead to a practical and economic improvement in the airport network.

4. Turf airports and the selection of proper grasses for them is most important. It is also a very practical plan and should be adopted by many communities.

5. Hangars and other buildings should be built to adequately serve. Huge buildings, etc., are not necessary for a number of airports.

6. There is a definite need for repair shops at all airports.

7. Fixed base operations are most important and are needed at the majority of airports.

8. There should be an administration or headquarters building of the size to fit the needs of the community. In this connection it is pointed out that many small community airports can very easily become recreation areas.

9. Airport expansions can come about as aviation progresses if the original plans are fundamentally sound.

10. The utility of airports must be considered.

11. It was suggested that in many cases it was not necessary to wait for state and Federal funds. Several instances were mentioned, emphasizing this particular point.

Southwest's 1,000th

Southwest Airways overhaul division at Thunderbird Field, Arizona, has just overhauled its 1,000th military engine, the company announces with Army approval. Only engines repaired and rebuilt for Army training bases are included in this figure, the depot also having turned out "several hundred" motors for WTS, ATC, and commercial aircraft.

Shippers Heard

(Continued from page 23)

to carry out the public trust to aggressively develop overseas air commerce.

Merchant Marine Committeemen contended that shippers, with their long years of experience in overseas trade, were best equipped to develop foreign air commerce.

Pogue suggested that at the time of the American Export case it would have been the wise policy for the U. S., limited in overseas air transportation to one company, to promote its foreign air field by allowing steamships to operate air services. The war has changed this situation, Pogue asserted, and we now have "airlines" ready and equipped to promote the national interest in foreign air commerce.

Pogue discredited claims by Committeemen that British shipping firms would have rights to operate airlines after the war. According to the best information, the British Government has not stamped its approval on the plans of shippers for air services, Pogue said. He added that, although he has conferred with many Englishmen engaged in drawing up Britain's postwar air policy, he has been given no reason to believe that that country will depart from its prewar policy of restricting air operations to a "chosen instrument."

Congressmen, pointing to numerous stories from the British press announcing the postwar air plans of British shippers, insisted that British shippers would have postwar air rights and maintained that our shippers must have similar rights to meet their competition.

(Facts on British law governing shippers in air transportation, ascertained by *American Aviation* from British reports are as follows: Aside from wartime measures, there is no stipulation in British law, such as the CAB's interpretation of the 1938 Act, which prohibits the development of air services by shippers. However, under Britain's peacetime law, British shippers would face two obstacles to their aviation ambitions. One is that British Overseas Airways Corp. holds a legal monopoly of all British services which are subsidized from public funds. This would mean that shippers would be pitted against their own government-supported monopoly and be barred from government mail contracts. The second obstacle is that the Air Minister, with powers to require all air services to be licensed, by the simple process of withholding licenses from all applicants might force upon BOAC a monopoly of self-supporting services as well).

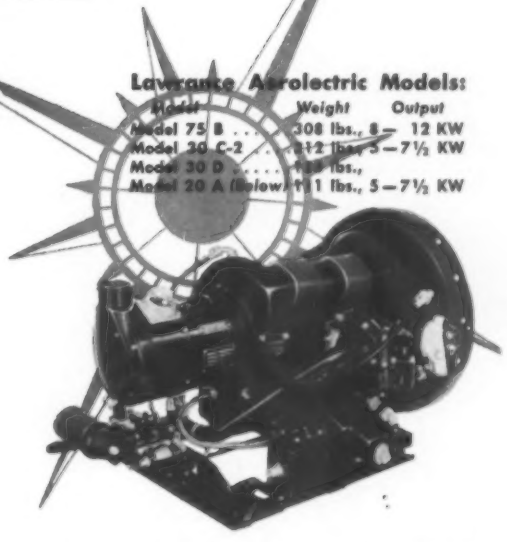
LAWRANCE *Aerolectric* POWER PLANTS ELECTRIFY THE *Mars*

Helping the mighty Martin "Mars" smash world's records on its recent long distance flights were the two Lawrance Aerolectric Power Plants with which this famous airplane is equipped. These specially designed units, like all other Lawrance models, make possible the wider use of electricity in aircraft by providing a dependable flow of current to operate such vital accessories as cargo hoists, main engine starters, radio, lights, and cabin heating and ventilating equipment.

Like the evolution of the huge Martin "Mars", the development of Lawrance Aerolectric Power marks a long step forward in the progress of air transportation.

Lawrance Aerolectric Models:

Model	Weight	Output
Model 75 B	308 lbs.,	8 — 12 KW
Model 30 C-2	212 lbs.,	5 — 7½ KW
Model 30 D	198 lbs.,	
Model 20 A (below)	111 lbs.,	5 — 7½ KW



LAWRANCE AERONAUTICAL CORPORATION

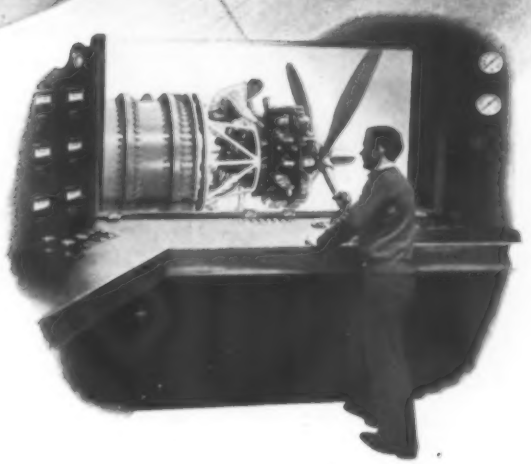
LINDEN, NEW JERSEY

proving ground for the big blades

Stepping far ahead of current engine and aircraft design, the new Curtiss twin test cells have been built for the express purpose of developing the huge blades of the future. Propellers up to 30 ft. in diameter may be tested on either liquid or air-cooled engines with ratings up to 5000 HP. A scientifically designed venturi section eliminates turbulence of air. A combination of cooling systems permits precise control of engine operation.

The new cells are the largest privately owned propeller test facilities in the world. Here in the convenience of a ground laboratory, streamlined air flow and vibration conditions similar to those encountered in flight are closely duplicated.

Sectional View of Cells
31 ft. diameter venturi sections.
Air jet cooling tube.
Twin control room.
Pumping and refrigerating units.
Labyrinths for air flow straightening and sound absorption.



In operation, the 48-inch air jet cooling tube slides forward until it covers the spinner and is within a few inches of the propeller blades. A central cone inside the tube spreads the air into annular ring form to deliver it around the hub and directly into the cowl opening. The operator in the sound-proof control room has a clear view of the propeller and engine during the test from several observation windows.

CURTISS ELECTRIC PROPELLERS

Curtiss-Wright Corporation, Propeller Division

Excerpt from a letter written by a former Breeze worker, now in our armed forces.

While our ship was on the ground, I spied a Breeze ignition shield and told the mech, 'I used to build 'em' He grinned and said, 'Best damn shield there is,' and with that my chest expanded to twice normal. A compliment like that from a motor doc reflects the swell job you folks are doing back home there on the production line. Keep it Up!

-what's in a *Name*

It All Depends on Past Associations and Present Circumstances

There's plenty in a name—when it's the familiar trademark of an old employer, and a man runs across it thousands of miles from home.

It means a lot to him then, because he knows first-hand of the skill and experience that went into the manufacture of the product, of the inspections that it went through before it was judged worthy to wear that trademark.

And then he realizes what that name represents—the pride of a manufacturer in a product, confidence in the future of the enterprise. The trademark becomes a symbol of opportunity for the day when men will resume their places once again in a peacetime world.

That's what's in a name—a reminder of the past and a promise for tomorrow.

Breeze BREEZE MARK
CORPORATIONS, INC.
NEWARK, NEW JERSEY

PRODUCTION FOR VICTORY • PRODUCTS FOR PEACE

CAB Releases Data for Use in Latin American Hearings

DATA WHICH is expected to have an important bearing on the Civil Aeronautics Board's decisions on new and amended air route applications for service to Latin America and the Caribbean area was released late last month. It was the report entitled, "Overseas Air Service Patterns—Transcaribbean and Offshore-Island Areas" and will be used in connection with the hearing on May 15th on some 25 applications for air service to these areas.

Prepared under the direction of F. H. Crozier, chief of Research and Analysis Division of CAB's Economic Bureau, the report contains a vast amount of statistical material gathered from various government sources as well as from operating air carriers and steamship companies. It is said to be one of the most elaborate studies of this nature ever undertaken by the Bureau.

The service pattern presented in this report covers 38 political divisions, comprising 21 Republics, nine British, three French and two Dutch colonies and three U. S. territorial areas. Pointing out that these countries are extremely diverse in economy, culture, topography and climate, the report states that they are now served by some 40 air carriers, exclusive of domestic U. S. lines. In 1941, the combined length of their routes was approximately 93,500 miles.

These countries are divided into three broad groups on the basis of their air travel or geographical characteristics. These groups are as follows:

Group 1.—Mexico, Cuba and the Bahamas—countries contiguous or adjacent to the U. S. Here air travel with the U. S. represents a total or major proportion of the whole and here transit from origination to destination is largely from within the U. S.

Group 2—The Caribbean region comprising the island and continental shore countries of the Caribbean exclusive of the countries named in Group 1. It includes Central America, Colombia and Venezuela with the island community. The relatively heavy air traffic generated in this region combined with transit traffic between North and South America gives it extreme importance in this study.

Group 3—Comprises South America except Colombia and Venezuela. This is, the report states, a large and diverse region but it will be considered as a unit for preliminary descriptive purposes.

The report emphasized that while local and national air travel are important and necessary to successful commercial operations, the greatest potential for American countries seeking to enter the Latin America-Caribbean field is likely to be international, rather than national, traffic.

"Purely national, or domestic, traffic offers the least promising market for the international carrier because of the general tendency to reserve this class of traffic for local national carriers," the report stated.

It is pointed out that considerable international traffic other than that interchanged with the U. S. is available to international carriers, particularly between the small states of Central America and the Caribbean. "However, a large percentage of the total of this class of traffic represents cross-boundary travel between the cities of the South Temperate and Central American zones, transported by carriers local to those regions.

"The surest and largest market for the international carrier, particularly the carrier of U. S. incorporation, is represented by the travel interchanged between the U. S. and other nations and territories within the total region," the report explained.

The report stated that the skeletal outlines of the overall air service pattern are based on the historic movement of passengers between the principal traffic centers of the U. S. and traffic centers intermediate to the U. S. and the southern tip of the South American continent via the shortest practical air routes between such centers.

"In general, the Caribbean area appears to offer profitable commercial air traffic in the Latin American region. This traffic will doubtless be principally of U. S. generation in the future as it has been in the past," the report stated.

The report calls attention to the fact that five countries in Group 2 have laws which generally reserve cabotage or purely domestic air traffic for the benefit of their national carriers. These countries are: Chile (all), Mexico, Brazil and Venezuela all except for limited rights to Pan American Airways, Inc., Colombia all except to UMCA, a U. S. incorporated subsidiary of PAA, which has cabotage rights between Medellin and Turbo. Other restrictions which would tend to hinder entry of American owned companies are touched upon in the report.

Growth of long range international travel in the Latin America region, and the possibility of maintaining such routes on a self-sustaining basis, may well depend upon the degree to which conflicting national air transport interests are subordinated to the common need for adequate international air transportation, the report pointed out.

The 38 countries covered in the survey have a natural and understandable desire to develop their national air transportation systems to the fullest extent and to utilize domestic traffic to support such development, just as we have here in the United States, it is explained.

Distribution of 1941 air passengers transported in these areas, both by area and class of travel, is shown in the following table:

Class of Traveler	1st Group	2d Group	3d Group	Total
NUMBER OF TRAVELERS				
Total Travelers	188,819	274,577	202,375	665,771
National	100,448	186,949	148,099	435,496
International, total	88,371	87,628	54,276	230,275
With U. S.	83,748	18,864	5,543	108,155
Other Countries	4,623	68,764	48,733	122,120
PER CENT OF AREA OF TRAVEL BY CLASSES				
Total Travelers	100.0	100.0	100.0	100.0
National	53.2	68.1	73.2	65.4
International, total	46.8	31.9	26.8	34.6
With U. S.	44.4	6.9	2.7	16.3

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Elected to UAL Board

Gardner Cowles, Jr., president of the Des Moines (Ia.) Register and Tribune, has been elected a director of United Air Lines, replacing Joseph P. Ripley, who recently resigned so that Harriman, Ripley & Co., with which he is associated, might handle United's new financing plan.

Mace Heads American's New Operations Research Staff

In a recent series of American Airlines' appointments, Gage Mace, former director of flight operations, has been named director of American's newly organized department, Operations Research. The work handled by this department will entail study and analysis of operating procedures and techniques of the industry, and American Airlines in particular. W. W. Braznell succeeds Mace as director of flight operations, while W. G. Hughen takes Braznell's place as chief of flying.

William H. Miller has been appointed operations manager, a position recently created to expedite procedures. Miller will supervise all operations departments, including communications, maintenance and overhaul, flight operations, station operations and airways and airports. During Miller's 15 years with the airline he has been station manager, division superintendent, flight superintendent and assistant director of flight operations.

Pan Am Vet Honored

Juan T. Trippe, President of Pan American World Airways System, presents Atlantic Division Manager John C. Leslie with 15-year service pin. Atlantic Division Manager at LaGuardia Field marine base since 1941, Leslie was technical adviser in charge of the flight of President Roosevelt to Africa for the Casablanca conference last year.

Weight Hearing Postponed

The Civil Aeronautics Board has postponed until March 15 the hearing on a proposal to increase take-off and landing weights of certain transport planes. Originally scheduled for Feb. 8, the Board delayed the hearing on request of the Air Line Pilots Association because the association desired more time to study the proposal.

CAB Calendar

Feb. 17—Hearing on application of Hughes Tool Co., requesting Board approval of its control of TWA if such control exists. (Docket 1182).

Feb. 28—Hearing on applications of Northwest, TWA, Colonial, American, Northeast, PCA, UAL and Braniff involving service between Milwaukee, Chicago and New York. (Docket 629) (Tentative).

Mar. 15—Hearing on proposal to increase take-off and landing weights of special types of transport planes.

Apr. 1—Hearing on application of TWA for stops at Joplin, Tulsa, and Oklahoma City between St. Louis and Amarillo on Route 2. (Docket 413) (Tentative).

Apr. 1—Hearing on applications of Mid-Continent, Delta, National and Kansas City Southern involving service between Kansas City and New Orleans. (Docket 570 et al) (Tentative).

Apr. 17—Hearing on Great Lakes-Florida case. (Docket 570 et al) (Tentative).

May 1—Prehearing conference on applications of Hawaiian, TWA, Matson Navigation Co. & Northwest for routes from Los Angeles, San Diego, San Francisco, Portland, Seattle to Honolulu. (Docket 851 et al).

May 15—Hearing on Latin America-Caribbean applications. (Docket 525 et al) (Tentative).

(Continued from page 51)

Other Countries	2.4	25.0	24.1	18.3
PER CENT OF CLASS OF TRAVEL BY AREAS				
Total Travelers	28.4	41.2	30.4	100.0
National	23.1	42.9	34.0	100.0
International, total	38.4	38.0	23.6	100.0
With U. S.	77.4	17.5	5.1	100.0
Other Countries	3.8	56.3	39.9	100.0

PENETRATION OF 1938 SEA AND AIR PASSENGER TRAFFIC BY 1941 AIR PASSENGER TRAFFIC BETWEEN THE U. S. AND BERMUDA, CARIBBEAN AREA AND LATIN AMERICA

Country or Area (1)	Total Sea and Air Passenger Traffic Calendar Year 1938 (2)	Air Passenger Traffic Calendar Year 1941 (3)	Per Cent of Penetration Col. 3 ÷ Col. 2 (4)
Bermuda	115,889	5,829	5.0
Bahamas, Cuba and Mexico			
Bahamas	21,689	13,530	62.4
Cuba	158,721	55,622	35.0
Mexico	14,626	14,596	99.8
Total	195,036	83,748	42.9
Other Caribbean Area			
Mainland			
British Honduras	340	....	....
Guatemala	5,065	850	16.8
Salvador	508	154	30.3
Honduras	1,584	80	5.1
Nicaragua	613	189	30.8
Costa Rica	1,472	267	18.1
Canal Zone and Panama	17,614	4,731	26.9
Colombia	5,092	1,945	38.2
Venezuela	5,300	1,995	37.6
Sub-total	37,588	10,211	27.2
Islands			
Jamaica	7,177	1,759	24.5
Puerto Rico	32,005	4,182	13.1
Haiti and Dominican Republic	3,607	957	26.5
Lesser Antilles (excl. Netherlands West Indies)	7,175	1,755	24.5
Netherlands West Indies	5,875	....	....
Sub-total	55,839	8,653	15.5
Total—Other Caribbean Area	93,427	18,864	20.2
Other Latin America			
Ecuador	676	578	85.5
Peru	2,405	927	38.5
Bolivia	595	183	30.8
Chile	2,173	479	22.0
Sub-total	5,849	2,167	37.0
The Guianas	2,318	273	11.8
Brazil	5,087	1,473	29.0
Paraguay	7 [1]	32	457.1
Uraguay	245	....	....
Argentina	4,271	1,598	37.4
Sub-total	11,928	3,376	28.3
Total—Other Latin America	17,777	5,543	31.2
Grand Total (excl. Bermuda)	306,240	108,155	35.3
Grand Total (excl. Bermuda, Bahamas, Cuba and Mexico)	111,204	24,407	21.9

[1] Air passenger traffic only.

Source: Special tabulations of the U. S. Maritime Commission and the Research and Analysis Division of the Civil Aeronautics Board.

Proportionate volume of various classes of traffic transported in Latin America by Pan American Airways and selected affiliates and TACA is compared in a table with the similar distribution of combined U. S. domestic air traffic. All data are for the year 1941. The table follows:

LATIN AMERICAN TRUNK LINE OPERATIONS

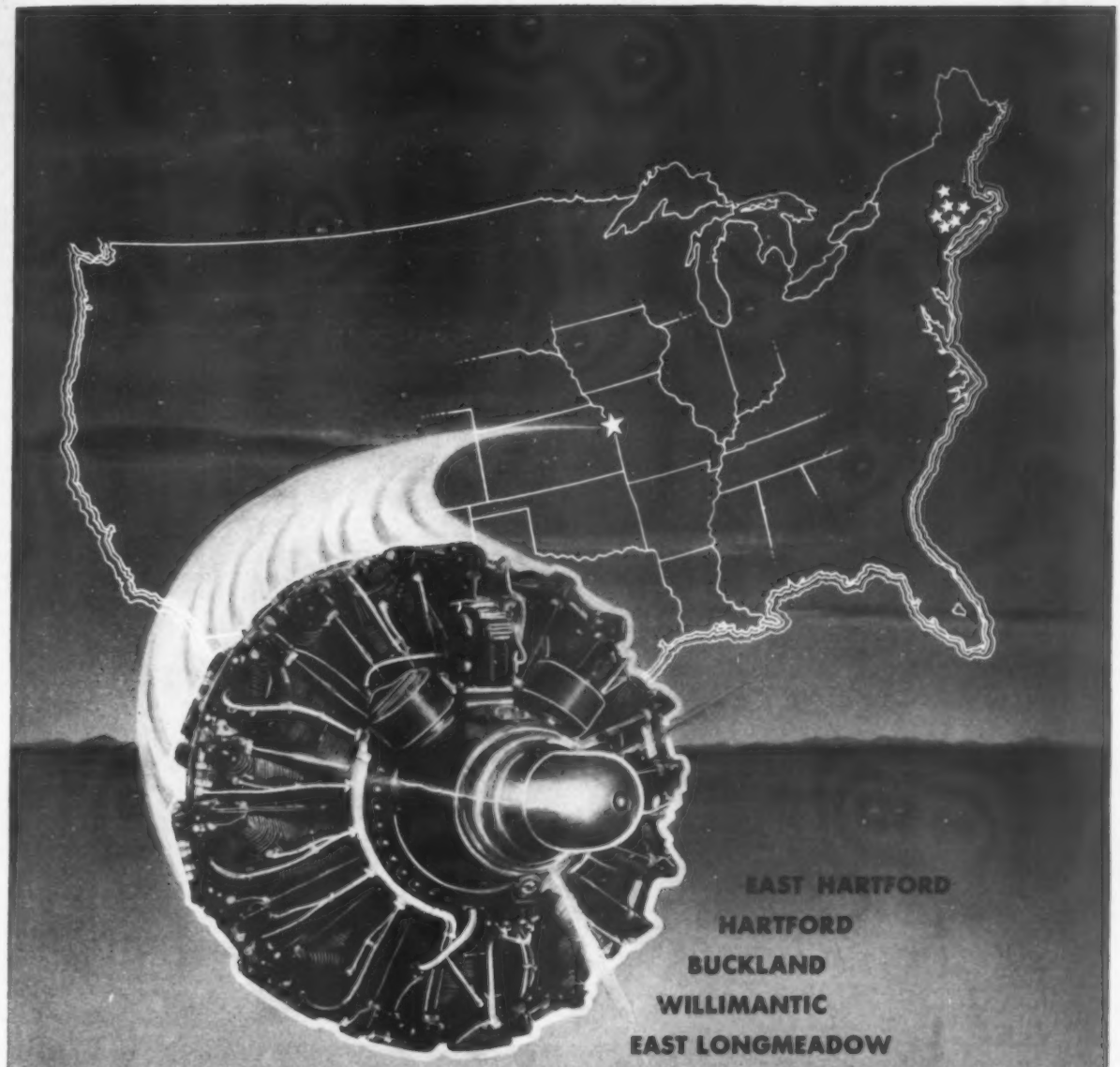
Carrier	Passenger Pound-Miles	Mail Pound-Miles	Express Pound-Miles	Excess Baggage Pound-Miles
Pan American Airways				
Eastern Division	90.63%	3.77%	3.62%	1.98%
Western Division	88.48	2.31	6.18	3.03
Total	89.85	3.25	4.54	2.36
Panagra	87.52	2.31	7.80	2.37
Grand Total	89.49	3.10	5.05	2.36

LATIN AMERICAN LOCAL CARRIER OPERATIONS

UMCA	67.69%	0.46%	29.10%	2.75%
Panair do Brasil	89.67	3.02	5.90	1.41
Cubana	95.05	2.33	2.01	0.61
Mexicana	83.39	1.34	14.09	1.18
Total	86.51	1.94	10.34	2.04

COMBINED U. S. DOMESTIC OPERATIONS

All Carriers	91.77%	5.24%	2.32%	0.63%
	Passenger Pounds	Mail Pounds	Express Pounds	Cargo Pounds
TACA (1939)	37.43%	1.27%	0.57%	60.73%



EAST HARTFORD
HARTFORD
BUCKLAND
WILLIMANTIC
EAST LONGMEADOW
SOUTHINGTON

...*and now*—KANSAS CITY

Each month millions upon millions of dependable horsepower is produced by Pratt & Whitney Aircraft at its several plants. Operating on a non-profit basis, the new factory at Kansas City, even larger than the home plant, is now producing "more powerful" Double Wasp engines to add its share to this already staggering total.

PRATT & WHITNEY AIRCRAFT

EAST HARTFORD, CONNECTICUT

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

CAB Interpretation of Three Words May Decide Panagra Route Case

THREE LITTLE WORDS once formed the theme for a harmonious melody yet another combination of three little words has produced the sharpest discord heard in aviation circles recently.

The Civil Aeronautics Board's interpretation of the meaning of the legalistic phrase entitled "Alter, Amend and Modify" will affect the future operating policies of two airlines—Pan American Airways, Inc. and Pan American-Grace Airways, Inc.

For an entire day late last month, the CAB listened to the argument as to just what these words mean in connection with the Board's authority or lack of authority to order a compulsory extension of Panagra's air service from Balboa, Canal Zone to Miami, Florida. The case is one of the strangest in U. S. transportation history.

The legal controversy hinged about the wording in Section 401 (H) which reads in part as follows: "The Authority (CAB) upon its own initiative, after notice and hearing, may alter, amend, modify or suspend any such certificate, in whole or in part, if the public convenience and necessity so require . . ." The word suspend did not figure in the argument as this is a power which the Board possesses and frequently uses.

Panagra Did Not Apply

Panagra has not applied for this route extension. As a corporate entity it was not even represented at the hearing. The reason is that Panagra is equally owned by Pan American and W. R. Grace & Co. and the PAA directors on the Panagra board would not consent to the filing of an application by Panagra. Therefore, W. R. Grace filed the application in behalf of Panagra. Pan American is bitterly opposed to the granting of this route as it will parallel PAA's operations between Miami and Panama.

The argument heard by the Board was based on a motion of PAA that CAB dismiss the W. R. Grace & Co. application for want of jurisdiction. Three domestic airlines—Eastern, Chicago & Southern and National—all joined Pan American in urging dismissal of the application.

Hence the Board is in the unique position of having to pass upon an application for new or extended air service for a carrier which was described as being both "actively unwilling or passively unwilling" to perform such a service.

Henry J. Friendly, counsel for PAA, W. G. Harlan, of Eastern, William I. Denning, of National and H. R. Bolander, Jr., of C & S all characterized Panagra as being an "unwilling applicant." John T. Cahill, counsel for W. R. Grace & Co., on the other hand, told the Board Panagra was not an active applicant for the plain reason that Pan American, holding 50% of the stock in Panagra, had not seen fit to join Grace Co. in seeking a U. S. terminal for Panagra.

Asking the Board to put itself in the place of the Interstate and Foreign Commerce committee when it was drafting the CAB act, Friendly suggested that had Congress intended to give the Board the power to order compulsory extensions of service, thereby taking expansion and development away from Boards of Directors and the stockholders, it would have expressly said so in clear cut and unmistakable language.

Friendly built his argument largely around the Supreme Court decision in the Oregon-Washington Railroad and Navigation case of 1933 (288 U. S. 14) where the court had reversed the Interstate Commerce Commission in ordering the railroad to extend its service into an area beyond the scope of its operations. Friendly further contended that had Congress intended to give the Board such power, it would have done what it did in other transportation acts and would have provided a judicial reviewing agency to which an appeal might be taken. He stated further that the Lea bill before Congress today is specific on this question, that the 1938 Act was passed without containing reference to compulsory extensions although the clause did appear in some of the bills originally introduced.

New Route Claimed

"From the Canal Zone to Miami is a new route. If that isn't a new route, one may ask why a 1,200 mile extension isn't a new route," Friendly said. He said in the railroad case previously mentioned, the Supreme Court had turned down the ICC on a 185 mile extension which represented but 1% of the carrier's existing system.

Cahill told the Board that Panagra was not an applicant for this route because the Pan American half of this corporate entity was opposing such an extension in service. However, he did remind the Board that Panagra was now operating from the Canal Zone to Miami under a temporary permit and asserted that such an extension of 1,150 miles to Panagra's 8,800 mile system represented less than 1/7th of Panagra's total route mileage. He traced Panagra's rapid growth in support of the contention that the carrier was well able to perform this additional service and that the public convenience and necessity required the extension.

"Panagra's development has continued apace and this proposed extension is not a staggering addition but represents merely an attempt at natural growth," Cahill said.

Harlan, counsel for Eastern, said the basic question was whether Section 401 (h) gave the Board power to compel an air carrier against its will to operate a new service which it does not want to serve. He said that Eastern had filed an application for such a route, was ready, willing and able to perform the service in a better manner than Panagra.

Denning, of National similarly told of National's plans to operate in the territory. "The willing applicants haven't had their day in court and the grant of a franchise to Panagra would be analagous to awarding a contract without competitive bidding or even without having received an offer from the party concerned."

Bolander of C & S, said the Board was heading into a dangerous policy. "If you can order Panagra to come to the U. S. it leads to but one thing. It means substituting your judgment for judgment of management. It means that Congress gave you the power to run the airlines. I don't believe we are that near state socialism," he said.

If the Board decides that it does have authority to order a 1200 mile extension of service, then it will have to pass on the public interest question which was presented at a lengthy hearing in New York. It was at this hearing that Pan American first entered the motion to dismiss the application of W. R. Grace & Co. which seeks the route for Panagra.

Among the issues raised under the public interest phase of the case is whether the Board could or should grant such a certificate to Panagra when it has not yet heard applications of other carriers—Eastern, National and Chicago & Southern—who have requests on file to serve either the identical or general area represented by the W. R. Grace & Co. application.

Chairman L. Welch Pogue touched on the Board's dilemma when he asked Cahill whether the Board, if it found it had jurisdiction, would be justified in ordering the extension when the fight between PAA and Grace tended to raise the question whether Panagra, under such conditions, could or would operate a service for the best interests of the public. Cahill replied: "Notwithstanding our disputes—we fight each other vigorously and I hope fairly and I might also say publicly—once the issue is decided, we resolve our differences and go about doing our job and I believe a good job." He said the record in the New York hearing was replete with instances where once differences had been resolved, Panagra performed successfully the task before it.

Other Statutes Compared

Cahill attacked the argument of Friendly, wherein Friendly had referred to five other statutes in which Congress had given express power to a regulatory or administrative agency to compel compulsory extension of service and had provided certain safeguards, such as judicial review, for the protection of the utility involved. Friendly had said that Congress had the phraseology of these acts before it when the Civil Aeronautics Act was passed but had left the "compulsory extension clause" out of the act.

Cahill declared that the Supreme Court had recently said that "reasoning from statute to statute is a treacherous business." He condemned what he termed was "Statute Hopping." He said these statutes were not comparable to the Aeronautics Act and held with Public Counsel John Wanner that Congress knew it was dealing with a young and dynamic industry, that it desired to give CAB, through Section 401 (H), sufficient latitude to deal with the expected phenomenal growth of the air industry rather than shackling it to the "inch by inch" extension of ground transportation and utility services.

All during the arguments of counsel, Board Member Oswald Ryan kept raising the question that had Congress intended to give the Board power to compel compulsory extensions, why then had it not included the safeguards which were found in other comparable acts.

"In cases of compulsory extension of service, Congress has always used express language. It is a drastic power. The forcing of an obligation on a party is fundamentally different than granting a party something it wants," Ryan said.

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Only 5 Lines Seek Routes as Filing of Applications Slackens

The Docket section of the Civil Aeronautics Board experienced one of the lightest periods in recent months in connection with the filing of new route applications.

From Jan. 22 to and including Feb. 4—a period of 11 working days—only five companies filed route applications. Docket Section employees feel that the peak record established in September may stand for all time as the big rush to get applications on file apparently has passed. A glance at a U. S. map which traces out the pattern of all of these new and amended routes looks somewhat like a giant spider web so completely has the country been criss-crossed by these proposed new air services.

Among the applications filed last week were three by Pennsylvania-Central Airlines, Corp. which seeks to tie-up its domestic routes in western New York state and Washington, D. C., with service to Canada.

A brief summary of the route applications follows:

Bremerton-Tacoma Stages, Inc.

This bus operator of 203 First St., Bremerton, Wash., filed an application to engage in air transport of persons, property and mail between the following points: Port Angeles, Port Townsend and Bremerton, Bremerton, Tacoma and Bow Lake Airport; Tacoma and Olympia; Bremerton, Shelton and Olympia; Olympia and Portland. The applicant, operator of a bus line, proposes to use both helicopters and conventional aircraft. (Docket 1294)

Kansas Aviation Co.

This company, Municipal Airport, Manhattan, Kan., filed application for feeder routes as follows: Manhattan-Kansas City, Goodland, Kan.-Denver, and three circular routes out of Manhattan. (Docket 1292)

Nevada-Pacific Airlines, Inc.

This applicant of Lovelock Airport, Lovelock, Nev., has asked for the following routes for transport by air of mail, passengers and property: Reno to Medford; Medford to Boise; Boise to Ely; Boise to Reno, via Elko; Reno to Las Vegas and Fresno to Salt Lake City. Applicant would use single engine, five or six place planes, to start operations and change to multi-engine equipment when the service justified it. (Docket 1295)

Pennsylvania-Central Airlines Corp.

This carrier filed applications (1) Syracuse-Montreal via Ottawa (Docket 1291), (2) Washington-Syracuse (Docket 1290), (3) Buffalo-Syracuse via Rochester (Docket 1289).

E. W. Wiggins Airways, Inc.

This fixed base operator of Municipal Airport, Columbia, Mo., filed an application for two circular routes out of Columbia and one out of Camden, Ark. (Docket 1293)

TCA Opens Office

Trans-Canada Air Lines has opened new offices in Montreal at 1478 Peel Street. Company describes it as the most modern and up-to-date airline traffic office in Canada. Larger ticketing and office space have also been opened in the Brunswick Hotel, Moncton, N. B.

Streamlined PCA Ticket Office

Here is an interior view of Pennsylvania-Central Airlines' new Chicago city ticket office. It is finished in PCA colors—rust, gray, and a light blue-green. The company says it is "the last word in functional arrangement for the handling of business."

Ryan Sees New York As Major Terminal For Overseas Travel

Oswald Ryan, member of the Civil Aeronautics Board, predicts that New York City will become the terminal for 600,000 international air travelers annually in the postwar era. He made the prediction in a speech before the New York Board of Trade late last month.

Overseas air transportation will capture half of the prewar seaborne traffic and New York's position as a seaport will be matched by the international air traffic which will pass through its termini, Ryan stated.

The CAB member also predicted that the million passenger a year record established at La Guardia Field before the war will be "vastly exceeded" in the postwar years.

"The preponderance of all trans-atlantic air travel may be expected to originate and terminate at the New York air terminal," he declared. On the question of inland terminals replacing those in seaport cities, especially in relation to overseas transportation of air cargo, Ryan said that this should have no ill effect on New York's role as a seaport. He pointed out that many hundreds of the largest aircraft built to date would be required to carry the cargo of a single fair-sized freighter.

Ryan prefaced these predictions with the statement that he was thinking of the airplane today in relation to that peace to come.

"In the progress of this war it is playing a revolutionary and a decisive part. It is becoming the strong right arm of victory. But I am going to predict to you that the impact of this American invention upon human life in the decades following this war will be as tremendous as its impact in the present crises," Ryan declared.

Asserting we must plan wisely now our foreign air policy so that maximum use may be made of the skills of more than a million young men who have been trained in aviation activities, Ryan urged the development of foreign trade and new foreign markets to implement our domestic economy.

"If we are to keep our great industrial machine operating we must find foreign markets or dismantle a large part of that capacity," he said. "Thus, the expansion of our foreign trade and commerce will become more essential than ever before to the absorption of a substantial part of the products of our factories, mills and farms, and to the useful employment of millions of Americans for whom places must be found if we are to insure the national well being of our people."

Financial Briefs

NORTHWEST AIRLINES for September quarter showed net profit of $312,820, equal to $1.33 per share, compared with $201,916, or 86c, in September quarter, 1942.

ALL AMERICAN AVIATION, INC., reported net operating revenue of $26,464, after deduction of maintenance, depreciation and other operating expenses.

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Women in Air Transport

(This is the tenth of a series of articles on women who are doing an outstanding but little publicized job for the U. S. airlines).

Few women today can better estimate the strides made by aviation in the last 17 years than can Erma Murray, assistant secretary for Chicago & Southern Air Lines. Her experience in aviation dates back to the days of the Varney Airlines, which flew mail and express in Stearmans—open biplanes—and single-engined Wacos over a hazardous mountain route.

A native of Bisbee, Arizona, Erma Murray was reared in San Francisco and educated at the University of California. It was Louis H. Miller, later to become a director of Continental Airlines, who aroused her interest in aviation to such extent that she transferred her services in 1927 from the advertising offices of Walter Varney, Sr., to those of the colorful aviator-experimentalist, Walter Varney. At this time Varney Airlines was the only company operating with offices in San Francisco.

In 1929, the Varney Airlines, and Erma Murray, were absorbed by United Air Lines. Going to Seattle, temporarily, to break in some new personnel, she was transferred, almost before she had time to unpack her bags, together with the entire office force, to Chicago, returning to the coast six months later.

At this time, Carleton Putnam's brainchild, Pacific Seaboard Air Lines, was a rapidly growing baby. In 1933 he opened a central office in Frisco, in modest quarters at Mills Field. Coming to him from the old Varney Airlines, were a few pilots and mechanics, two of the office force, and Erma Murray.

In 1934 Pacific Seaboard Air Lines was awarded the Chicago-New Orleans route, the name changed to Chicago & Southern, and the offices moved from San Francisco to Memphis, Tennessee. The romance of aviation had set fire to Erma Murray's blood, for she came with them, disregarding her resolution never to leave her beloved west coast.

In 1934 Erma Murray went to Washington to testify in the first air mail rate case to be presented before the ICC. She was the only woman present as a witness in this hearing, which was a group case of all the airlines in an effort to impress the government that the mail subsidy was too small. But this was merely the first of many cases in which she was to testify, concerning either rates or routes.

Keeping in step with the strides of aviation is her own advancement from a bookkeeper's desk, with Pacific Seaboard, to her position in 1940 as Assistant to Amos Culbert, legal expert of the airline, who was vice president and treasurer of Chicago & Southern, at the time.

Today Amos Culbert is a vice president of American Airlines, but Erma Murray is still with C. & S., being one of the two pioneer members of that tiny office force at Mills Field who still wear C. & S. wings.

And today, Erma Murray, who bears the title of Assistant Secretary, is the link between the Legal Department and the Treasury Department of Chicago & Southern. Her duties comprise custody and application of all contracts, handling of tax matters, special analyses on all financial matters, and other duties so numerous as to be confusing.

Airline Commentary

Another fine ticket office was opened in Washington last fortnight—American Airlines opened one in the Statler Hotel . . . In connection with the opening, the company had an excellent exhibit, showing the part it is playing in the war, how it is utilizing its airplanes, etc. . . . And there were a couple of charts at the exhibit that were amazing . . . For instance, 80.2% of the business on the company's transcontinental route is priority traffic . . . For the entire system the percentage is 63.8% . . . Average flying time per airplane is 11 hrs. 46 minutes daily . . . Average time per active airplane (not including those in overhaul) is 14 hrs. 23 minutes . . . Average time per active plane in service (this includes not only flying time, but time on the ground at stops) is 18 hrs. 17 minutes . . .

●

You may be interested to know what territory one American airplane covers in one day . . . One of them leaves Chicago in the morning, goes to New York via Buffalo, turns around and returns to Chicago via Washington, turns around and returns to New York via Buffalo . . . Another one leaves New York at 12:01 p.m., goes to Boston, returns to New York and then proceeds to Burbank, Calif., arriving there at 11:52 a.m. . . . And it wasn't more than a few years ago that many airline officials insisted that airplanes couldn't be operated more than seven or eight hours a day . . .

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Are people interested in aviation? . . . One of our sources tells us a story about the U. S. Conference of Mayors' meeting in Chicago recently . . . Among the speakers were Charles Stanton, CAA Administrator, and two very high government officials, one connected with the War Dept. and the other with WPB . . . Charlie Stanton, we understand, was questioned for half an hour after delivering his speech . . . The two other officials were asked only one question between them . . . This could be significant as showing where the mayors' interest lies, and how anxious they are to get their airports ready for postwar traffic . . .

●

Now comes a story from Delta Air Corp. which speaks for itself . . . It was by J. H. Brown, Delta station manager at Columbia, S. C. . . . We quote . . . "In the current of fast-moving people and events that are so characteristic of this day and time, there occasionally happens an incident that is genuine—one that sort of makes a person pause and think for a while. Such is the following, which happened here and which I think you would be interested to learn. Sgt. W. T. Montoya, Ft. Jackson, had requested and received confirmation on a reservation to Los Angeles, departing Columbia on Trip 7 of Jan. 20. While on field maneuvers the preceding day, he was accidentally and critically wounded. When reached by fellow soldiers, his first words were 'Please call Delta Air Lines and cancel my reservation. .Tell them I can't go.' The thoughtfulness of this sergeant has touched the feeling of this office. If a wounded soldier can remember his obligation in his first words, it doesn't reflect well for the busy executive or the absent-minded housewife or the braided colonel who 'forgets'" . . . Think it over, boys . . . Have you been a no-show recently? . .

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Local draft boards always take a beating, but we can't resist the temptation to add one more story . . . It seems that a mechanic of one of the major airlines was classified 1-A and was about to become one of Uncle Sam's boys . . . He was registered in a board in a fairly small town . . . So he appeared before his "neighbors," explained that he was a mechanic and was in an essential industry and thought maybe he ought to be deferred . . . So then the conversation went something like this: a board member said, "Who do you work for?" . . . "I'm with Blank Airlines," answered 1-A . . . "Is that a commercial airline?" he was asked . . . "Yes," says he . . . "Well," says the board member, "what's so essential about that? Hasn't the Army been carrying the air mail since 1934?" . . . Our informant swears this is a true story . . . We have no comment . . . (The fellow was eventually deferred) . . .

Eric Bramley

IT'S WILCOX *in Radio Communications*

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State Legislatures Expected to Consider Aviation Bills

COMING UP in state legislatures last fortnight—especially in states determined to maintain control over air transportation within their own borders—were several bills of importance to aviation.

Although a relatively small number of legislatures are now in session, the bills introduced, and the action taken on them—either for or against—is expected to be of great importance, in view of the pending Lea bill.

The two bills of greatest interest in air transport circles were introduced in Mississippi and Virginia.

House Bill 65, introduced in the House of the Mississippi Legislature, seeks to "more clearly define the terms thereof and to more clearly vest the Public Service Commission with jurisdiction over and control of transportation by aircraft."

In an unusual action, the bill broadens the definition of "motor vehicle" to include aircraft, thus giving the PSC direct control over aviation. Section 3 (d) of the act (Chapter 142 of the Laws of Mississippi), as amended, would read: "The term 'motor vehicle' means any vehicle, machine, tractor, trailer, or semi-trailer propelled or drawn by mechanical power and used upon the highways in the transportation of passengers or property, but does not include any vehicle, locomotive or car operated exclusively on a rail or rails. The term 'motor vehicle' also means aircraft, i.e., any and all contrivances now known or hereafter invented, used, or designed for navigation of, or flight in the air, including, but not limited to, airplanes, helicopters, autogiros, gliders, dirigibles, balloons, and all similar or related instrumentalities."

The bill also contains definitions of "common carrier by motor vehicle," "restricted common carrier by motor vehicle," and "contract carrier by motor vehicle," which would apply to aviation under the broadened definition of "motor vehicle." The Commission is empowered to issue certificates of public convenience and necessity for common carriers by motor vehicles and restricted common carriers by motor vehicle, and issue permits to contract carriers. Also defned in the bill is the term "interstate permit" which means "a permit issued under the terms of this act to the holder of a certificate of public convenience and necessity, a permit, or other operating authority from the Interstate Commerce Commission."

Pending in the Senate of the Virginia General Assembly is one of the most comprehensive state aviation bills introduced to date. Known as Senate Bill 4, the legislation seeks "to define air carriers and air transportation brokers; to provide for the regulation, supervision and control of persons, firms, corporations and associations, owning, controlling, operating or managing aircraft used for air transportation of persons or property for compensation or hire or the carriage of mail by aircraft in the air space of this State, and of air transportation brokers, whether such commerce moves wholly by aircraft or partly by aircraft and partly by other forms of transportation; to provide for the regulation of the rates thereof; to provide for and/or regulate and/or control the operation of, and the charges, rates or services imposed by any person, firm or corporation operating aircraft for compensation in the air space of this State; to provide for the enforcement of this act, and for the punishment of violations thereof."

The 48-page bill defines "common carrier by aircraft" as "any person who or which undertakes, whether directly or by a lease or any other arrangement, to transport passengers or property for the general public, or mail by aircraft for compensation (through the air space of this State), whether over regular or irregular routes, including such aircraft operations of carriers by rail, water or motor vehicle, and of express or forwarding companies under this act."

The Virginia State Corporation Commission is the regulatory body proposed in the bill.

Common carrier, or restricted common carriers, by aircraft must have certificates to engage in intrastate commerce, and contract carriers must obtain permits, according to the legislation. "Any person or predecessor in interest who was in bona fide operation as a common carrier by aircraft on Nov. 1, 1943, and who has operated continuously since such date as a common carrier by aircraft over the route or routes and between the termini set out in his application shall be issued a certificate of public convenience and necessity without the requirement of proof of public convenience and necessity and shall be considered the common carrier entitled to rights on said route or routes; provided, that proper application is made to the commission within 60 days from the effective date of this act. . . ."

Pan American Consolidates Pacific, Alaska Divisions

Consolidation of its transpacific and Alaskan air transport operations into a single administrative unit with headquarters at San Francisco has been effected by the Pan American World Airways System.

Effective Feb. 1, the new unit, known as the Pacific-Alaska Division, combined the Transpacific Division, based at San Francisco, and the Alaska Division, based at Seattle. L. C. Reynolds, Acting Manager of the Transpacific Division, has been named Manager of the Pacific-Alaska Division, to be based in San Francisco. Alaska sector headquarters will be maintained at Seattle.

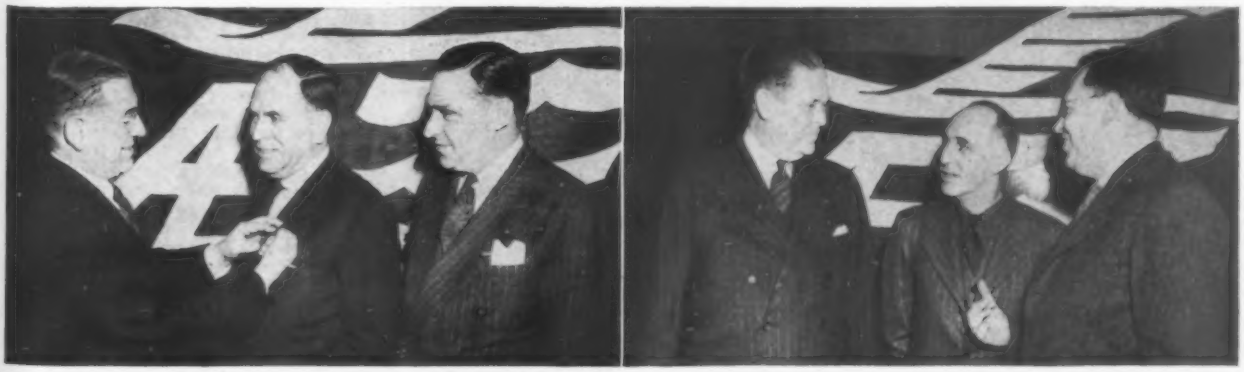
Pan American officials called it "a further step in long range plans for the centralized administration of related services." Last Jan. 1 all its Latin American services, a network of nearly 50,000 route miles, were consolidated into the Latin American Division, with headquarters at Miami, Fla.

Key executives with Reynolds in the Pacific-Alaska Division are the following:

E. H. Nowlin, Division Accountant; Frank McKenzie, Division Airways Superintendent; J. H. Tilton, Division Operations Manager; V. A. Kropff, Division Traffic Manager.

For the Alaska sector of the division, O. J. Studeman was named Manager; C. H. Goodwyn, Operations Manager; S. D. Smith, Traffic Manager, L. D. Warner, Accountant.

'Pioneer' Employes of American Export Airlines Are Honored



Thirty-six of the oldest employes of American Export Airlines were honored at a recent dinner in New York. In the picture at left, Executive Vice President John E. Slater presents gem-studded emblems to James M. Eaton, Vice President, and W. Sanger Green, Manager of the Passenger and Cargo Dept., both of whom joined the company in 1936 when it prepared its first plans for air service to Europe. In the picture at right are three others who received emblems: Left to right, Parker Mitchell, Superintendent of Maintenance; Durston G. Richardson, Vice President-Operations; and Thomas B. Rodenbaugh, Superintendent of Stations.

Lines' Financial Record Improved by War, CAB Report Says

Marked improvement in the financial position of the domestic air carriers and greatly increased air carrier operations, much of it induced by war service, are stressed in the annual report of the Civil Aeronautics Board released last fortnight.

Operating expenses of the air carriers declined about $10,000,000 because of substantially reduced equipment and consequent less total mileage flown while revenues derived entirely from non-mail traffic increased about $7,000,000. Dividends paid aggregated about $2,500,000 or less than 8 per cent of the operating profits during the year. Unappropriated earned surplus more than doubled to $27,000,000, while long-term debt decreased from about 2¼ million dollars to less than ¾ of a million dollars.

Compared with the previous year, payments for the transportation of mail by the Government declined from 0.75 mill per pound-mile to 0.42 mill per pound-mile. Pointing out that the revenues and expenses of the domestic air carriers discussed in the report apply to commercial operations only and not to war contract services, the Board said, "Fees received by the air carriers for their contract services constituted only a small portion of their total profit and that in a few instances even these fees have been returned to the Government."

The Board reported that the airlines are now operating commercially about 55 per cent of the flight equipment in use before requisition by the Army. Airline aircraft are now flown about 1½ times as many miles daily as prior to June 1, 1943, and the load carried per mile increased 40 per cent, the Board said. Mail service increased 2½ per cent over prewar volume; express service increased more than 3½ times and the aggregate loads of all traffic carried averaged almost the maximum capacity available per airplane. Despite increased utilization of equipment much essential traffic of all classes was turned away because of lack of space, the report stated.

Progress made in the transition from a peacetime to a wartime character of operations enabled the Board to resume considerations of amendments and applications for increased and new air service. At the end of the period covered by the Board's report, the domestic air carriers of the United States, including Catalina with 61 miles and Hawaiian with 356, were authorized to operate over 48,724 route miles, serving 284 cities and towns in passenger service. An additional 81 cities were served on over 1400 route miles by air mail pickup operations.

The Board noted that it had authorized competing air service between San Francisco and Los Angeles; and that Washington, D. C., was provided with increased air services through authorization of two additional air carriers to serve the nation's capital. The Board said that direct service was also provided between such important cities as New Orleans-Shreveport-Dallas; Denver-Kansas City; San Antonio-Laredo; and Amarillo-Denver. In addition, new air service was provided to northeastern Wisconsin, one of the largest population groups in the United States heretofore lacking in air transportation service. National air service was also materially improved through inclusion of present air stops on additional existing routes.

The Board disclosed that 348 applications, seeking to add nearly 4,000 new cities and towns to the national air transportation system were pending as of October 31, 1943. Since that time 111 additional applications increased the total to 459, the Board said.

Of the 348 applications before the Board for domestic air service, up to October 31, 1943, 61 had been filed by surface carriers and an additional 27 since that time.

Internationally, the Board, upon approval of the President, added 1,075 miles to the certificated American Flag air transportation system by issuing a temporary three-year certificate for service between New Orleans, La., and Guatemala city, Guatemala, via Merida, Mex., thus providing a new air transportation gateway between the United States and Central and South America. The Board also, with the President's approval, awarded certificates to 21 Alaskan air carriers, marking the first step in the regulation of air transportation service in that territory.

Informal studies on international air operations are being conducted by the Board, which has invited interested persons to submit suggestions regarding international routes to be operated after the war. The Board also announced that it was proceeding with hearings, the first to be opened up since the beginning of the war, on applications for new airline service between the United States and points in Mexico, the Caribbean area, and Central and South America. The Board said 62 applications seeking new international and overseas air service were pending before it at the end of the period covered by the report. Since then 28 additional applications have been filed.

Private flying was materially curtailed because of wartime restrictions; instructional services and other commercial services by non-air carrier operators continued at a high level. Flying hours per airplane increased considerably due to the shortage of equipment. Removal of non-air carrier civilian-flying activities from the restricted coastal areas to the interior portion of the country greatly increased the problem of maintenance, as it was necessary to base many aircraft out-of-doors on hastily improvised airports without well-established facilities. Difficulty in obtaining spare parts further aggravated this problem, and it was necessary to dismantle some planes in order to obtain parts to maintain others.

'4 Postwar Plane Types'

Ray D. Kelly, superintendent of development for United Air Lines, described four possible types of planes for use on commercial airlines within five years after the war in a recent talk before the Traffic Men's Association of America in Chicago. His descriptions follow:

"A four-engined, 62½-ton, 100-passenger transport, with a cruising speed of 250 miles an hour and a range of from 3,000 to 3,500 miles, primarily for over-ocean passenger operations but capable of carrying reasonably large amounts of cargo; a four-engined, 35-ton, moderate range passenger type for domestic deluxe sleeper service; a four-engined, 25 to 30-ton 'coach' or 'club' carrier for passengers and cargo, and a twin-engined 16-ton plane which could be used as a variable land carrier, either for passengers or as a 'flying freight car' or as a combination of both."

Delta Air Lines' Traffic Managers

A recent traffic conference at Delta Air Lines' general offices in Atlanta brought together traffic managers from Delta's entire system. First row, left to right: E. H. Bishop, Birmingham city traffic manager; R. Stanley Webber, general traffic manager; B. G. Grant, Jackson city traffic manager; M. E. Beard, Shreveport city traffic manager. Second row, left to right: George O. Stayman, Cincinnati city traffic manager; A. V. Birmingham, district traffic manager for Dallas, Fort Worth, and New Orleans; and J. V. Little, district traffic manager for Atlanta and the Eastern Division.

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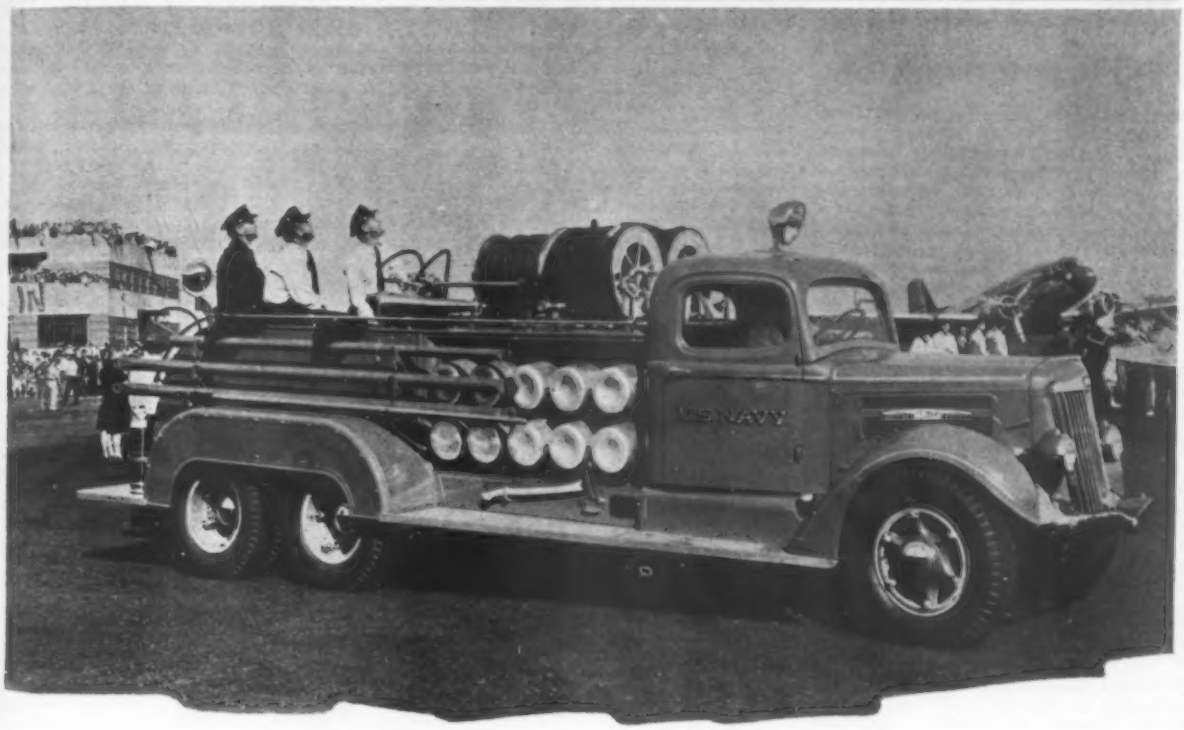

"FLYING TRUCKS" Make Flying Safer

ANOTHER EXAMPLE of the many and varied uses for motor trucks in aviation is the "flying safety squadron" vehicle which is standard equipment at many modern airports.

Pictured is such a unit owned by the U. S. Navy—one of several maintained on 24-hour-a-day alert at several eastern and southern fields. It is equipped to handle, speedily and effectively, any emergency arising from a "crash landing."

Its operation is not confined to airports. It is powered to be able to reach disabled planes landing in all but the most inaccessible places.

White has had a quarter-century background of experience in meeting all the specialized truck needs of the aviation industry and a keen interest in being a part of the bettered world-wide transportation of the future which aviation's progress has assured. Your inquiry regarding a specialized problem will have the prompt attention of men interested in the mutual needs of truck transportation and aviation.

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Pan-Am Criticized in House; Sheppard Threatens Probe

Under the title, "Juan Trippe and How He is Laboring to Give Birth to a Monopoly of Our International Airways," Rep. Harry R. Sheppard (D., Calif.) on the House floor during the fortnight attacked Pan American airways, declared it responsible for "the largest and most active lobby the Congress of the U. S. has ever been called upon to withstand" and threatened an investigation "if the monopolistic ambitions of Mr. Trippe found fruit in the soil of the Nation's capital."

After the war, "the American people will be confronted with three things in the picture of our overseas commercial aviation," he said and enumerated; "(1) Our place on and in the ocean of the air, an ocean our inventive genius alone made usable; (2) How best to use the equipment and 'know how' we possess in that limitless ocean, and how to use them for the betterment of mankind and the preservation of the peace, and (3) Why we should oppose, for our own sake, the desire of one or more men to dominate and to stake out for themselves the exclusive utilization from the U. S. of the last free element—the air."

Sheppard gave Trippe's "formula" for developing a monopoly of our international airways as follows: "Surround yourself with wealthy and influential friends. Make them stockholders. Cultivate them assiduously. Amaze them with personal boldness, gigantic plans, your ability to use your wealthiest partner—Uncle Sam—and even to make Uncle a trifle 'slap-happy' at times. Stage a knock-down and drag-out scrap with your wealthiest private sponsor and give him the air . . . the air you have grown to regard as your private property. Introduce into the family of your wealthiest public partner, Uncle Sam, a sufficient group of the members of your board of directors so the people will wonder where your company ends and Government begins or vice versa. Establish in the national capital the largest and most active lobby the Congress of the U. S. has ever been called upon to withstand."

Sheppard commended the work of domestic airlines in international war work and urged that the international field remain open to them after the war period for commercial operations. He said: "The airways over the oceans after the war must be open to American free enterprise. Each one of our airlines must have the opportunity to compete for its share of the traffic. The Civil Aeronautics Board will safeguard the national interest by its regulations and by issuing certificates to airlines to fly the oceans only when justified by public convenience and necessity."

Declaring that "the interests centered in Pan American Airways Corporation" want "to cripple aviation by monopolizing trans-ocean flying", Sheppard traced in detail the tie-ups of PAA's directors with other powerful financial interests. PAA directors and officers affiliated with other economic interests mentioned by Sheppard were: T. A. Morgan, S. M. Fairchild, and John W. Hanes, with aircraft manufacturing; S. Sloan Colt, John W. Hanes, Robert Lehman, Leo T. Crowley (also head of the Foreign Economic Administration), with banking; Robert Lehman and Charles F. Adams, with communications companies; Samuel F. Pryor, "Boston" Adams, Lyman Delano, and Admiral W. H. Standley, with shipping and shipbuilding; and Adams with railroads.

"Pan American's connections range into other fields as well", Sheppard said. "They include utilities, manufacturing and insurance. Juan Trippe is a director of Chrysler and of the Metropolitan Life. Colt and Adams are on the board of General Electric. Colt and Lehman are on the board of General Foods. Leo Crowley, Norman Davis and Admiral Standley might almost seem to give Pan American a kind of status in the Government. And, lest you think this distinguished battalion of high government officials insufficient, may I add to their number Mr. Trippe's not unknown brother-in-law, Mr. Edward Stettinius, the Undersecretary of State."

American Adds a New Ticket Office

Shown above is American Airlines' attractive new ticket office, opened last fortnight in Washington's Statler Hotel.

Braniff Foundation Plans Explained by Airline Head

Details of The Braniff Foundation were disclosed recently by T. E. Braniff, president of Braniff Airways, who has incorporated the Foundation as a non-profit charitable organization "for the purpose of supporting religious, charitable, educational, scientific and literary undertakings."

Braniff said the original intent of the Foundation had been the improvement and development of aeronautical science and practice, but it has now been decided to impose no restrictions upon its activities. Offices will be in Dallas, Tex.

Officers and directors of the Foundation are: president, T. E. Braniff; vice president, Bess Thurman Braniff; secretary-treasurer, C. G. Adams. Other directors are Jeanne Braniff Terrell, Charles E. Beard, R. C. Shrader and Hal C. Thurman, all of Dallas.

Southern College to Offer Course in Air Transportation

An accredited course in air transportation will be introduced in the spring term at Dallas College of Southern Methodist University. In announcing the new course, Dr. G. O. Clough, director of the college, stated that "air commerce is bound to have such a far-reaching effect on the economy of the nation and of the world that a knowledge of the fundamentals of the medium is a logical study for advanced students."

Pickering

E. H. Pickering, recently a special consultant on air cargo with the Army Air Forces, in Washington, D. C., will conduct the course. Pickering is now with the Guiberson Corporation, Dallas. He has been connected with aviation since 1930, having been a former vice president of Texas Air Freights, Inc.

The course will include a study of the background and economics of air transportation; a typical airline organization; the work being done by the military air transport services and its effects on the future of the industry; postwar possibilities of the airlines and the economic, social and political effects to be expected.

UAL Engineer Sees Increased Use of Diesel Engines in Aircraft 'Within 10 Years'

W. W. Davies, superintendent of research for United Air Lines, recently told the Chicago Section, American Society of Mechanical Engineers, that "within 10 years we will see a considerable increase in the use of Diesel engines in civil aircraft." He predicted that aircraft engines developing as high as 4,000 hp. would be in use within five years. At the same time, with a reasonable development approach, aircraft engine weight per horsepower should go down from the present 1¼ pounds to one pound, and probably less, he said.

There's Daddy!

The "Sky Club" local is landing in Elmswood and city commuter Bill Brown is aboard.

The time, 5:45 p. m. The date;.....well that's a military secret but it is sometime after the war when American aviation has fashioned its progress to the pursuits of peace.

Then, much transportation distance will be charted in minutes instead of miles and the measured hum of cargo, mail and passenger transports and thousands of personal passenger planes in the airlanes will herald a new geographical era for the nation; a suburban America.

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Frye Praises CAB's Decision to Hear Foreign Cases Now

The Civil Aeronautics Board's decision to hear applications involving Canada and the Caribbean area now is a step toward insuring a sound air policy through gradual evolution, Jack Frye, president of Transcontinental and Western Air told American Aviation in Los Angeles last month.

"The CAB has taken a step in the right direction, away from the school of thought which advocates waiting until the war is over before laying the foundation for our future international routes," he said. Frye foresees a "maze of theoretical solutions which won't stand up in practice" if the policy of waiting for a postwar conference table is allowed to prevail.

The laying out of routes now to places where contract operations could immediately be converted to commercial operations, and installations of other operations as arrangements can be worked out with the governments concerned would accomplish these things, Frye believes:

1. Permit American companies to enter the postwar period of competition in a strong technical and financial position, insuring a world air system for this country.

2. Give employment at once to many military veterans, such as discharged pilots, mechanics, and technicians, who are seeking jobs in civil life in ever increasing numbers.

"Right now, there are no military or diplomatic obstacles involving routes to Hawaii, South America and certain parts of Africa, to mention a few," Frye said. "We should begin negotiations with the British, Dutch, Portugese and Spanish, so that piece by piece a system is set up. It can't be done overnight in one fell swoop, except with a waste of money, material and time."

Questioned concerning the growing ambitions of surface carriers to enter the air transportation business the TWA president evinced no great concern.

"I believe that the progress of the industry would be retarded if the entire industry came under the control of the railroads, but this is unlikely," he said. "Actually, a strongly financed, independent airline would probably find it easier to compete with a railroad running an airline than with another independent airline.

"As an industry we've always fought over one thing or another. These differences of opinion and the resulting competition have brought much progress. On the whole, it's been a healthy situation," he added.

Frye foresees that TACA, in which TWA recently acquired a substantial interest, will develop into "one of the most valuable airline properties in the world."

He expects to see many new companies. Some of these new operators will survive while many will "lose their shirts and such airlines will again be sold for a dime on the dollar as they were in the early days and following the mail cancellation period," he observed.

WESTERN AIR LINES reveals that revenue passenger miles flown during December, 1943, showed an 80.82% increase over December, 1942. The mileage figure totaled 2,991,316, compared with 1,654,299 the previous period.

Adams, Studebaker Engaged For Hawaiian Airlines Jobs

Stanley C. Kennedy, President of Hawaiian Airlines, Ltd. announced recently that Alvin P. Adams of Los Angeles had been engaged by the Airlines on a temporary basis for special consultant work in connection with the Company's application to the Civil Aeronautics Board for an airline franchise for air transport service between Los Angeles and/or San Francisco and Honolulu, Hawaii.

Adams, who is Vice President of the Fairchild Engine and Airplane Corp., has been granted sufficient time from his present responsibilities as General Manager of the Company's Duramold Division to undertake these consulting duties with Hawaiian Airlines.

At the same time Kennedy announced the appointment of Ford Studebaker of Washington, D. C. as Technical and Operations Consultant.

Adams will prepare necessary data in connection with the Airlines' application for its proposed California-Hawaii operations. He was President of Western Air Express (now Western Airlines) from 1934 until 1940, following which he became President of Seaboard Airways, Inc.

Studebaker, until joining Hawaiian Airlines, was assistant vice president of the Rubber Development Corp. in charge of its Aviation Division. Previous to that he was Chief of Communications and Assistant Operations Manager of American Export Airlines, Inc., assisting in the preparation of the company's North Atlantic operation. In addition to his duties in Hawaii, he will prepare operational data for Hawaiian Airlines' projected Trans-Pacific routes.

Traffic

UNITED AIR LINES reports that total mail ton miles flown in December, 1943, amounted to 1,196,519, exceeding by one per cent the all-time high reached in November. The December figure represented a gain of 44% over the corresponding month for 1942. Express ton miles increased 9% over the previous month and 47% over those for December, 1942.

PENNSYLVANIA-CENTRAL AIRLINES announces that during the first full year of war-restricted operation, total mail carried increased 58% and express 81%. Mail carried in 1942 totaled 2,872,721 lbs. against 4,547,709 lbs. in 1943. Express for 1943 totaled 4,357,938 lbs. against a 1942 total of 2,407,277.

NORTHWEST AIRLINES reports that during 1943, a total of 93,494 revenue passengers were carried, a total of 63,787,683 revenue passenger miles. The figures represent an increase of nearly 12,000,000 revenue passenger miles over 1942, and an increase of 2,791 revenue passengers.

CANADIAN PACIFIC AIR LINES carried 71,696 passengers, 2,197,417 pounds of mail and 9,489,417 pounds of air cargo during the fiscal year ended December 31, 1943. Passenger traffic increased 24% and mail carried showed a gain of 28%. There was a decline of 1% for air cargo handled. Passenger miles flown totaled 24,053,000, an increase of 82%, and mail pound miles flown of 907,505,000, a gain of 87%.

AIR EXPRESS DIVISION, Railway Express Agency, reports that 11,074 tons were handled for the airlines in the first nine months of 1943, exceeding the air express cargo for the whole year of 1942 by 272 tons. Shipments totaled 1,115,145; gross income exceeded $8,250,000. Average charge per shipment increased from $6.18 to $7.41, while average weight rose from 14.6 pounds to 19.8 pounds per shipment.

Airline Personnel

Wood Morrison

United Air Lines announces that **Homer Morley** has been appointed Los Angeles traffic representative for the military services. His territory covers Southern California, Nevada and Arizona. **Richard G. Tully** is United's new counter manager in Los Angeles succeeding **Maurice Perry**, promoted recently to the post of counter manager for the company's entire system. Tully was formerly counter manager in Washington, D. C. **Col. Maurice W. Wiley** and **Col. Joseph A. Anderson**, of the AFF, former UAL pilots were recently decorated in New Guinea for outstanding work with the Troop Carrier Command.

Pennsylvania-Central Airlines reports that **Stanley Kobe** has been appointed communications supervisor of the Washington general offices. **Walter H. Hedrick, Jr.**, has been made supervisor of food service for PCA.

Robert L. Campbell is now superintendent of maintenance for Hawaiian Airlines, Ltd. He has been with Hawaiian for two years and was formerly associated with the Civil Aeronautics Administration.

Trans-Canada Air Lines announces appointment of **F. T. Wood** as assistant to the vice president, with headquarters at Winnipeg.

Wilbur L. Morrison has been named vice president of the Latin American Division of Pan American. He was General Manager of Pan American's Mexican affiliate, Compania Mexicana de Aviacion, since 1935 and manager of the Western Division from 1942 until the merger in January of the Eastern and Western Divisions.

Tully Morley

Loening Differs on Estimates

(Continued from page 24)

the smoke cleared away and the fancy articles in magazines were accumulating dust, this plane actually proved capable of carrying, after some changes, only 15 to 18 passengers at first, and later 25 passengers, after some changes, at about 143 miles an hour for a distance of 2,000 miles. In its policy on choice of aircraft, the company vacillated first from land planes, then to flying boats, and now back to land planes, and incidentally, its present land planes are advertised as "Clippers." They have no relation to a vessel whatever, and were developed by the domestic American airlines.

"When the war came along, and the Army Air Transport Command started the domestic airlines into helping out in flying cargoes over the oceans, the glamour, mystery and prestige of Pan American as an operator fell very rapidly. In very short order, at least two of the American domestic airlines were found working fully as efficiently as Pan American, carrying loads as long or longer hours per airplane per day on unfailing schedules, and with the most skillful handling.

Others Should Share

"As a natural consequence, other airlines in our domestic set-up and other aviation interests begin to feel that the time is rapidly coming when other companies should be allowed in the international field to get their fair share of American business in this field . . . Sixteen of the domestic airlines, all except United Air Lines and American Export Airlines, who were just starting feebly in the foreign air transport field, voiced their view that a regulated competition was the way for this country to organize its aviation in the foreign field.

"United Air Lines joined Pan American Airways in advocating a monopoly, one of the principal arguments being that the steamship travel, and the percentage of this that air travel would get, would be so small that only 15 airplanes would be needed to carry the North Atlantic potential market next year, and only 43 by 1948. So, if there were more than one company in the business, the size of such a company, according to United's arguments, would be too small to cope with the foreign monopolies that will be set up. Actually, the traffic will be 20 to 50 times any such figure."

Loening pointed out that the chief controversies raised in connection with the Lea Bill (HR 3420), contemplated as a new Civil Aeronautics Act, have been the charges that the legislation would extend Federal control over aeronautical matters that had heretofore been handled by the States, if at all—and the assertion that the bill endeavors to make more positive the prohibition against surface carriers entering the aviation transport field.

"This has aroused not only the fears, but the lobbying fighting power and opposition of the great railroads and bus lines, who feel that they have a stake in air transport. A just and fair interpretation of the Lea Bill's permissive authority over states' rights or against surface carriers would not necessarily hamper either of these fields. There is no prohibition involved, merely a discretionary authority . . . if the air is going to drive the railroads out of business, that is just inexorable progress. As a matter of fact, it probably will, and that is at the bottom of all these feverish activities.

"The railroads are engaged in selling transportation by means of railroad trains. That is their business. The airlines are engaged in selling transportation by means of aircraft. These are just as distinct as the difference between selling communications between persons by means of a Post Office stamp or by a telephone wire system. The end product of railroads versus aircraft is transportation, but the method of accomplishing the sale of this commodity should and always must be competitive."

The States' rights matter is not very serious, really, he said, because flying cannot get very far on state operation alone and would sooner or later have to submit to Federal regulation. It would be far less of a burden on the aeronautical industry to have only one single licensing and inspecting source than to lose some slight gains by having the freedom of varying State laws in addition.

The surface carriers have seized on the States' rights feature as a vehicle upon which to ride in opposition to the Lea bill, he insisted. There is general agreement among aviation students of this subject that it would be hurtful to the air transport field to have the railroads allowed into it. The commodity that is sold in air transport is a totally different commodity than is sold by the railroads. It starts from a different place, uses a totally different technique, gives a different result over an entirely different path. If such a principle of one field invading another were to be followed, it might as well be said by the railroads that they should go into the telegraph business because of the miles of wire they have along their right-of-way, and their knowledge of how to plant telegraph poles.

"In addition, young men starting into new fields with new enterprises, using new vehicles in America, must not be told that they cannot start a new way of traveling from point to point because the privilege of moving anybody or anything belongs to the railroads. Carried to its absurd climax, this would mean that the railroads should charge a fee for allowing you to walk or ride a bicycle.

Rails Should Compete

"As soon as we submit judgment of aviation's progress and development to the old railroader, we will kill it. The railroads cannot be allowed to claim the right of eternal life via the monkey glands of aviation. Their business should be to rival aviation by super streamline trains, super luxury, super cheapness."

The same arguments that applied to railroads apply to the shipping companies seeking to enter the air field, Mr. Loening said. "If the shipping companies were so fast asleep in 1937, when the Maritime Commission gave them the opportunity to enter the air business, as to fail to show any serious interest and to allow the recommendations that Chairman Kennedy of the Maritime Commission made at that time, then are we justified in entrusting the further development of aviation to their hands now.

"In addition, we would be turning over the air business to that section of American international enterprise that allowed foreign vessels in the pre-war era to capture seventy per cent of the United States foreign commercial business."

A very curious situation is happening in this controversy, he added, in that in Great Britain the British shipping companies raise the fear that American steamship companies are going into the air and fear the British must do likewise, and over here, our steamship companies wave in the face of our Congressmen, newspaper clippings telling how the Cunard Company or some other British shipping company is going into the airline business.

"It is also obvious that any shipping company would have to start a new organization to get into the air anyhow as far as the men are concerned, because aircraft operation is such a distinct specialty and so different technically from the operation of ships in fundamentals, like questions of maintenance practice and weight limitations. So why have these new organizations under the aegis of an old shipping board of directors which at some point in its deliberation must decide how much to spend on ships versus airplanes? Why have the argument at all?"

When the opposite question is asked, "Can an air company derive anything of value from a shipping company?", the answer appears to be so largely in the negative as to give little weight to the shipping companies' proposals to fly, he said. "They are selling the carriage of passengers and goods by vessels that float on the water. Years ago they had something to offer the then growing and poor air business, but now, alongside of the experienced established airlines with their completely competent staffs and long experience in transportation and travel problems of their own, the only possible advantage to permitting shipping companies to invade the airfield is to save the shipping companies from loss due to the reduction of business in their own field. This they should face by suitable new economies and modifications of their business, and selling efforts to improve their failing situation, not by jumping into another and unfamiliar field as a save-all."

Traffic

PENNSYLVANIA-CENTRAL AIRLINES reports that mail carried in the first full year of war-restricted operation increased 58% and express 81%, according to figures for 1943, despite the assignment of more than half of PCA's planes to the Army. Mail totaled 4,547,709 pounds against 2,872,721 in 1942; express 4,357,938 pounds against 2,407,277. Percentage of scheduled miles flown increased 5% from 90 to 95%. Number of revenue passengers carried per mile gained by 28%, at the same time the passenger load factor increased 15%.

NORTHWEST AIRLINES planes carried 5,001,481 pounds of airmail during 1943. Airmail pound miles for the 12-month period totaled 4,003,213,910. The month of December led all other months with a total of 534,539 mail pounds, an increase over December 1942, when 340,108 pounds were carried and a gain over November when 482,564 mail pounds were flown.

How to Start a Revolution

YOU wouldn't take them for revolutionists, these men. They don't wear long black cloaks or employ secret passwords. But they're preparing to toss a bomb into American industry . . . to start the biggest revolution since 1776.

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WHO are these men? They're research specialists of the aviation industry. You see, it takes more than aeronautical engineers to build today's bombers. Here at Martin's, for example, are experts in metallurgy, plastics, synthetic rubber, hydraulics, electronics, and many other fields, united in one common cause . . . to make America supreme in the skies.

From the efforts of these Martin research men have come more than great aircraft. They have developed new materials, devised new uses for old materials, discovered new manufacturing methods which promise to revolutionize American life.

The works of their research are now blasting America's way to victory around the world. You'll see the mark of these men after victory, not only in aircraft but on the homes in which you live, the cars you drive, the very clothes you wear. They've got tomorrow in a test-tube at Martin's!

What's more, America's postwar products and American technical skill are going to reach world-wide markets *fast*. Already Martin has completed designs for giant airliners of 150 or more tons, ready to build as soon as victory gives the green light. Such ships will make neighbors of all nations . . . such ships will give seven-league boots to the peoples of all nations . . . such ships will bring the world to within hours of your doorstep.

America and the world have a glorious future ahead, when victory is won. That's why we say, buy Bonds today . . . because you've a date with a new world after victory!

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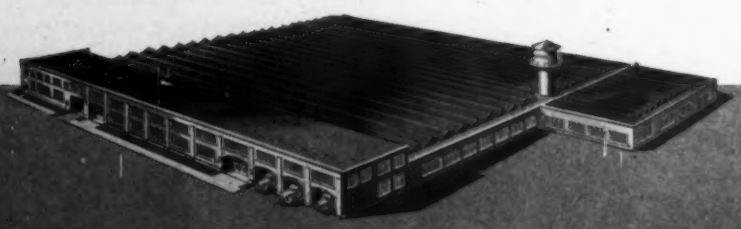
A-N Electrical Connectors are only a part of the extensive Amphenol line which serves the electronics industry. Other products include: A-N Conduit, A-N Conduit Fittings, Low-Loss Cables and Connectors, British Type Connectors, Connectors for special Applications, Radio Parts and Accessories, Synthetics—Sheet, Tube, and Rod.



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B. B. Gragg, director of sales for United Air Lines (left) and Harold Crary, vice president in charge of traffic, upon completion of 15 years with United were presented service pins set with two diamonds by W. A. Patterson, president, shown at right.

UAL Employe Suggestions Produce Many New Ideas

Four thousand employe suggestions of the United Air Lines Employes Suggestion Conference have produced 700 adaptable ideas for improved management worth more than $12,000 in war bonds, and 35 suggestions have merited war production awards, F. A. Denz, conference chairman, reveals. The suggestion system will promote improved management-employe relations in postwar production as well as in wartime, Denz pointed out in a paper prepared for the Office Management Association of Chicago.

Denz

American Has First Permit For Night Flying in Mexico

Instrument flying is now possible in Mexico with the recent installation by American Airlines of "the first modern directional range airway in any Latin-American county," Delos W. Rentzel, director of communications for the airline, announces.

American has been an international carrier, by visual contact, to Monterrey and Mexico City since September, 1942. At that time the airline agreed to establish directional ranges as soon as equipment was available. Delivery was made November 27 and a trial flight was made over the new airway December 1. Following submission of a report on this flight to the Civil Aeronautics Authority, American received "the first permit ever granted by the CAA to a United States airline for night flying in Mexico."

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CURTISS-WRIGHT TECHNICAL INSTITUTE BEFORE THE WAR • DURING THE WAR • AFTER THE W

Aspects of "Interchange" Need Study

Writer Outlines Significance of Term in the Development of Air Cargo

By E. J. Foley

"INTERCHANGE" is more than a word of reborn popularity in the air transport vocabulary. Its growing prominence is significant of the future; interchange will be a dominant, real problem in the airline operations of the days ahead. Think of flown cargo, universal in destination and inanimate, moving in plane-load quantities—think of it flying from New York to Billings, from Minneapolis to New Orleans. There's your demand for the solution to the puzzle of interchange.

It is time now for us to take a look at this problem, not necessarily a scrutinizing inspection but a general gander which may give us a lead for some planned action. Having touched on interchange in these columns last issue, as an incidental to our air cargo thinking, is not enough; the subject is worthy of more than that.

A review of a few basic considerations pertinent to air cargo will provide a logical approach to "interchange", as it bears upon the subject.

The airlines, as common carriers, appear to be obligated to provide an air cargo service to the public at reasonable rates. Naturally, rates and volumes move in opposite directions even if the relationship may not be a straightline proportion. Volume comes with low rates, all other things being equal. In the development of an air cargo rate for the future, it does not seem appropriate to count on an appreciable reduction in direct flight costs, if we are to believe those who know. No revolutionary reducing element appears on the horizon.

Lists Factors

The other factors which must go into the make-up of our rate are: handling, loading and unloading the aircraft, pick-up and delivery, etc. It may be in these elements in which we shall have to seek our savings or our rate reduction. In our examples above, New York to Billings and Minneapolis to New Orleans, at least two carriers are involved under today's air service pattern. Cargo moving between these or any two points not served by a single carrier requires an "interchange"—the physical interchange of the cargo itself from one vehicle to another.

The full cycle is: loading, unloading, transfer to the other air carrier, loading and unloading. The need for an intermediary agency to provide this intercarrier link in our chain is evident if every certificated point is to receive air cargo service from all other certificated points. Digressing for a moment, the inclusion in our thinking, of off-airline points requiring air-surface shipment, necessitates this intercarrier organization to provide for air-surface coordination even if we have no problem of cargo transfer between airlines.

To get a better view of the significance of physical interchange of cargo, assume a cost of 30c per hundred pounds for moving cargo either into or out of the airplane. This figure may be less than present airline costs or more; it is surely higher than comparable costs in surface transport. Extending this figure to take care of the whole cycle above: four movements give us $1.20 per hundred pounds or $24.00 per ton, just for loading and unloading as required in shipping by air between two points not served by a single air carrier.

On a 600 mile haul, this portion of our *cost* becomes 4c per ton mile. We hear of rates to the public of *20c per ton mile* but even assuming double this, 40c per ton mile, loading and unloading *cost* on these specific movements can amount to 10% of our *rate*—a conservative rate when compared with predictions.

Now you can't solve all of the problems by eliminating the physical interchange of cargo; there are other economies to be realized. However, over the specific type of operation discussed, a 50% saving in loading and unloading is possible if the interchange can be made to apply to the vehicle or route rather than to the cargo.

Yet neither interchange of vehicle nor of route is a simple clean-cut proposition without cost or complexity, and that is putting it mildly.

The joint use of a piece of flying equipment does not promise total advantage or profitable arrangement. It subjects the aircraft to two operating techniques and two maintenance routines to mention only a couple of the major factors. The simple existence of slight discrepancies between the two operators' practices need have no effect on the airplane. However, to each of the parties concerned, the implications of such a program may be far reaching and serious.

Malfunctioning of units, operating quirks, maintenance delays and other such conditions have a way of reflecting upon one or the other air carrier. Mountains and molehills get all mixed up and make the harmonious achievement of a mutually desirable goal next to impossible.

In deference to those wishing to consider interchange in the light of railroad experience, a look at the record may be of value. We believe that railroad practice dictates that under normal conditions, a locomotive is operated only on owner-company tracks and by an owner-company crew. Without specific knowledge of the causes behind the policy we assume it denotes a desire for retention of operation and maintenance of the power plant in owner hands.

Passenger coaches are similarly restricted in usage but, of course, freight cars are pooled subject to use by any road in quantities demanded by the traffic. The flexibility of cargo traffic accommodations as permitted by separation of power plant and load-carrying members may be the single railroad distinction envied by the aviation industry. Its desirability is attested to by the several aeronautical engineering attempts to provide it in aircraft form. No practical, built-in flexibility looms on the aircraft horizon; we may therefore be entitled to figure that air cargo's vehicle will be unique in speed but not versatile in terms of railroad interchange.

It would be possible to skirt the problem of equipment interchange in air cargo by the use of a single industry-sponsored, nationwide organization to handle all *air cargo*. Such a body can be visualized as flying and maintaining the aircraft, loading and unloading the cargo and performing all phases of the operation through the use of aircraft duly owned or leased from individual airline operators.

Any consideration given to such an undertaking must, first and foremost in our judgment, recognize it as a weak approach to a tough job. Service to the shipping public demands a strong, effectively directed approach. This is a "chosen instrument" type of venture promising little inspiration to the enthusiastic development of air cargo by the individual carriers.

There is another solution to many of the *maintenance problems* lurking in an interchange agreement. The creation of a cargo-plane maintenance pool is a definite postwar possibility for one or several aircraft manufacturers. Manufacturer-maintenance is no stranger to these columns; in this particular operation the manufacturer might own, maintain and rent the aircraft on a flat mileage basis as required by the operators' volumes.

The success of such a plan hinges upon the acceptance of the manufacturer's service standards by the several participating airlines.

Second Way

If there appears to be no acceptable basis for the interchange of aircraft-powerplant and all—the operation of one carrier over another's routes or route interchange is the second way to avoid the actual transfer of cargo.

It seems appropriate here to mention time-in-transit as a portion of air cargo's value—a portion which can be jeopardized by this unnecessary delay in transfer. Methods and machinery for loading and unloading at a rate which will permit neglect of these motions as a part of time and cost values are a long way off.

Route interchange has, as a precedent, the operation of air carrier charter flights prior to the war. Its regular application in cargo service is too complicated to be decided summarily in the negative, as some are inclined to do today. Surely, there are intricate details which were no part of the duty or responsibility of the "visiting operator" before the war; but they do not seem insurmountable.

Reciprocal services and charges will have to be expanded since there are many characteristics of cargo entirely foreign to charter passenger operation. Today is the time for us to get the straightforward reaction of carriers and regulatory agency alike on this specific matter. This is no narrow problem open to individual solution. It is on just such a hook that this nation's air cargo future can be impaled.

GATE 1 for feeder line business

A NEW air map is in the making for America. While a network of sky giants now link the nation's major centers, a new kind of feeder line air system will give wings to the produce and commerce of rural America . . . and there is a good chance that it will produce the biggest "gate" in aviation history.

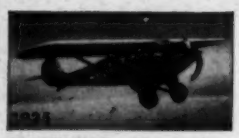
This means short hops over pastures, prairies and mountains, in all kinds of weather with all kinds of cargo.

But where are the special type airplanes coming from to do this job . . . airplanes that can take off from restricted fields and miniature lakes . . . with convertible loads of passengers or freight . . . and pay a profit to the operator?

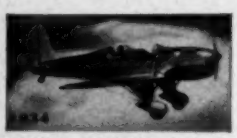
Fletcher Aviation Corporation, builders of FBT 2 trainers and allied aviation products for war, is completing specific plans to meet the problem. An announcement will be made shortly – in the meantime we shall be glad to send you information on the "Fletcher Feeder Line Proposal" if you will write us on your letterhead.

Fletcher Aviation Corp.
PASADENA CALIFORNIA

RYAN-STANDARD cabin plane; pioneer passenger airliner.

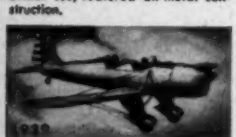


RYAN BLUEBIRD, cabin monoplane, forerunner of "Spirit of St. Louis"



RYAN S-T metal-fuselaged primary trainer; led trend to low-wing types.

RYAN S-C, cabin plane for private-owner use, featured all-metal construction.



RYAN STM, first low-wing primary trainer types (PT-16 and PT-20) used by Army.

RYAN STM-S2 seaplane, exported for training Naval pilots.

RYAN PT-25, superbly engineered plastic-bonded plywood trainer.

Why *Ryan* Manifolds

ON SO MANY FAMOUS PLANES?

Back of Ryan's long position of leadership in the engineering and production of exhaust manifold systems is a different way of working—

A golf champion knows that how he hits the ball is mostly a matter of the "back swing" and the "follow thru".

Similarly, Ryan's enviable reputation for "hitting the ball" has resulted from a policy of encouraging design and engineering consultation *before* production and by following through *after* production with expert assistance on service problems and prompt and adequate parts supply.

Time and again it has been proven that Ryan can save its customers' money, weight and precious engineering time if Ryan engineers are called in for consultation with the customers' power plant experts and given the manifold design assignment when the original airplane design is being laid out. And besides these *savings* are the extra *benefits* of better performance and service characteristics.

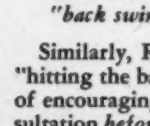
Ryan engineering and production experts have demonstrated their leadership in the specialized field of manifold design and manufacture. Evidence of this is that Ryan technicians are responsible for what designers consider important development in manifold design in the past 15 years—the patented Ryan "ball and socket" universal joint, an essential to most modern power plant installations.

These are typical of the reasons why Ryan manifolds and other exhaust system applications are standard equipment on so many of America's most successful military and commercial planes.

If you have an exhaust systems problem we invite you to let Ryan apply its "know how" to it *in the designing stage.*

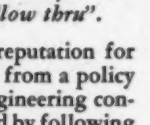
RYAN

Rely on Ryan to Build Well



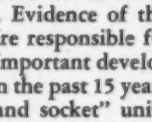
RYAN BUILDS WELL

Ryan construction, proven in aviation's pioneer-days, now proven in war, will tomorrow produce safer, more useful peacetime aircraft.



RYAN TRAINS WELL

Ryan School of Aeronautics, famous peacetime air school, now training fine U.S. Army pilots, follows one creed. Thoroughness.



RYAN PLANS WELL

Modern engineering + flying experience. Typical result: Ryan exhaust manifold systems are now used on the finest planes of other manufacturers.

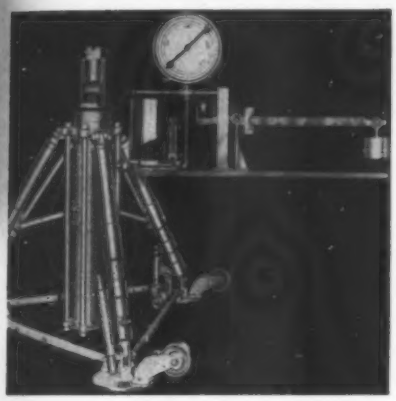
RYAN AERONAUTICAL COMPANY — MEMBER, AIRCRAFT WAR PRODUCTION COUNCIL, INC.

GENERAL OFFICES: LINDBERGH FIELD, SAN DIEGO — EASTERN OFFICES: 420 LEXINGTON AVE., NEW YORK

Equipment News

Malabar Weight Indicator

This simple, accurate and foolproof device for weighing an airplane when empty, during loading or fully loaded to check Center of Gravity, eliminates laborious weighing methods and profound calculations with wide error possibilities. Product of Malabar Machine Co., Los Angeles, it consists of three of the units shown in the photograph. Each unit is comprised of a hydraulic cylinder, connecting hose, pump, oil reservoir, pressure gauge and beam scale. The hydraulic cylinder fits into a socket in the head of the plunger of any Malabar Aviation Jack. The gauge, scale beam, etc., are mounted on a mobile buggy where one observer checks weighing. The airplane is lifted on two wing jacks and tail jack to clear



the ground. The pump on the mobile buggy is then operated with two or three strokes. The exact weight at each point is recorded on the scale beam. The total weight on the three scales denotes the total weight. Variances in the weight on the wing points can be corrected by load re-distribution. A comparison of recorded weights fore and aft with plane manufacturers load distribution chart discloses any variances and they can be corrected during loading to insure true Center of Gravity in flight. The necessity for correcting ship's balance in flight by the pilot is entirely eliminated. Less fuel consumption, greater speed and freedom from crackups in take-off and landing are claimed.

High-Altitude Capacitors

Based on extensive tests of terminal breakdown voltages in rarefied atmospheres, Aerovox Corp., New Bedford, Mass., is offering high-altitude capacitors for aircraft. One of these capacitors is similar to the standard Aerovox Type '12 round-can, barrier-cap units, except that one terminal is a short screw post and the other is a tall insulator post with a corona shield at the top. The cover assembly is a one-piece ceramic cap, with the can top spun over a rubber gasket and the cap for a perfect hermetic seal. This arrangement is said to minimize surface leakage, corona losses and probability of voltage breakdowns even at extreme altitudes. Aerovox Hyvol vegetable oil is used for the impregnant and fill to provide effective capacitance at sub-zero temperatures.

Master Setting, Checking Rolls

Sav-Way Industries, Box 117, Harper Station, Detroit, 13, Mich., announces this set of master setting and checking rolls for use with micrometers and other precision inspection and gaging instruments. The set consists of 20 individual rolls ranging from .100" to 2.000" in diameter. The rolls are hardened, ground and lapped to gage makers' X tolerance and deep freezing before finish grinding is said to eliminate internal strains and accelerate aging. The rolls are recommended especially for checking micrometers since flat gage block checking may permit inaccuracies in subsequent work on round stock. Uneven wear of the micrometer anvils results in only the high spots making contact with the flat block. The set is available in a clear plastic case which provides protection and insures ease of checking of the completeness of the set.

Randolph Extinguisher

This is the Model FF-4, 4 lb. CO2 Fire Extinguisher, latest development in the line of Randolph Laboratories, Inc., 8 E. Kinzie St., Chicago, Ill. The unit, strictly a one-hand device, features a self-aimed fixed discharge nozzle and a thumb-operated trigger.

SIGNAL INDICATION
Shock Resisting! Vibration Proof!

EYE OF SIGNALETTE ALWAYS FIRMLY ON THE JOB

Littelfuse SIGNALETTE

Littelfuse Signalette is an original improvement in signal indication by light. Radium-active fluorescent vanes, electrically energized, open to signal by reflected light, daylight or artificial, or in total darkness. Positive indication in brightest sunlight. Instant adaptation to airman's eyes from cockpit to target. No filaments to break. No necessity for spares. No burnouts. Withstands temperatures —85° F. to 160° F. Uses only ½ the current. Fits the ⅝" standard lamp mounting AC42-B3593. Available in 6, 12, 28 V., and 115 V., A.C. (fitting 1" mounting) for continuous operation. Solder or screw terminals. Signal colors: Red, amber, white, green.

Suggested Aircraft Applications:

LANDING GEAR	OIL PRESSURE
RUNNING GEAR	RADIO
OXYGEN FLOW	FUEL PRESSURE

BOMB RACKS

Withstands Shock in Industrial Uses

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Quick Payment of Canceled Aircraft Contracts Is Urged

A report highly commending the Army Air Forces and the aviation industry for the remarkable progress made during the past four years in developing the nation's air arm, was compiled by a subcommittee of House Military Affairs Committee during the fortnight and submitted for approval to the full Committee.

The subcommittee enthusiastically predicted that important war roles will be played by two new plane types, the P-61 "Black Widow" and "the new secret plane developed and being built by Ryan Aeronautical Co."

The report is largely a review of the steps and factors involved in stepping up the air program to meet the demands of the air war. But, in addition to analyzing the past, it makes recommendations for aviation's future, pointing to the need for adequate contract termination provisions and provisions for the orderly disposition of surplus aircraft plants.

Members of the subcommittee making the report were: John J. Sparkman (D., Ala.); R. Ewing Thomason (D., Tex.); Paul J. Kilday (D., Tex.); Charles R. Clason (R., Mass.); Thomas E. Martin (R., Iowa); Charles H. Elson (R., Ohio).

If the aviation industry is to survive, prompt payment of canceled aircraft contracts is imperative, the committee said. The Committee also suggests the possibility of converting surplus aircraft plants to postwar use by converting them to storage warehouses for surplus war materials. Text of these portions of the report follows:

"The aircraft-production industry entered the war period with very slender financial resources. These resources have grown in total amount with the tremendous growth in the industry, but they are even now smaller in proportion to current operations than they were at the beginning of this war. The capital value in 1939 was 53% of the annual sales volume and this was far below the average for all industry which stood at 113%. In 1942 the percentage of capital to total sales volume had shrunk to 8% whereas the average for all industry stood at 70%.

"The weakest position in the financial structure of the aircraft-production industry is their extremely low net working capital. By net working capital is meant the margin by which current assets exceed current liabilities. Before this war this ratio stood at 1.7 for the aircraft-production industry compared with a current ratio of over 4.0 for all industrial companies. This ratio has been somewhat reduced in all industry and in the aircraft-production industry in which the current ratio is now reduced to 1.09.

"Inasmuch as aircraft production has been devoted entirely to filling governmental orders during the war, it is vitally necessary that the Government make adequate provision for prompt liquidation of canceled contracts if the aircraft industry is to survive the impact of any sudden cancelation of governmental contracts. This problem has been the subject of considerable study by the Committee on Military Affairs and by governmental officials. The prompt liquidation of canceled governmental contracts is especially vital to the aircraft industry because of the financial position of that industry as indicated above. Leaders of the aircraft industry have cooperated wholeheartedly with the Military Affairs Committee in our study of this problem with a view to the enactment of any needed legislation to expedite this liquidation whenever these contracts may be canceled. We urge the governmental officials engaged in this study and charged with this responsibility to continue their studies and efforts to overcome any threatened disaster in the aircraft industry from this cause.

"Any abrupt and extensive curtailment of Government orders of aircraft in the postwar period will give rise to another serious problem: Namely, the use or disposition to be made of the large plants themselves. This problem was discussed informally by the committee members with the members of the Aircraft War Production Council, Inc., at a meeting with them in Los Angeles.

"One plan suggested was acquisition of these plants by the Federal Government and their use for storage of surplus war materials rather than permit them to disintegrate through nonuse or be converted to some use that might destroy the potential capacity of our Nation for aircraft production.

"This problem and its solution will have a far-reaching effect upon the future military preparedness of our Nation and it deserves the most thorough study and consideration long in advance of the adoption of any final determination of policy."

The subcommittee indicated in the report a belief that German air progress has kept in step with Allied advancements. As a result of conferences with Brig. Gen. E. C. Le May, commanding officer of the third air division of the Eighth Air Force, and members of his staff, the subcommittee reported:

"They were clear in their statements that the Germans are fighting them in the air as hard, if not harder, now as at any time since Americans began their participation in missions. They do not regard the spirit of German airmen as having been broken or impaired. They praised the German equipment as modern and not deteriorated."

Alarm was expressed in the report at a recent increase in AAF training accidents. It declared:

"An increase in the number of accidents is to be expected in the greatly expanded training program. However, we are sincerely alarmed to discover a recent rise in the rate of those accidents. We are particularly alarmed to learn that the rate continues to rise. An accumulation of experience, development of aircraft and instruction methods should produce a reduction in the rate."

The report covered, in a generalized way, the following subjects:

Production Efficiency; New Types of Planes; Manpower Problems of the Aircraft Industry; Army Air Forces Training; Flying Training Accidents; School of Aviation Medicine: Tactical Air Forces; Marksmanship and Gunnery in the Air Forces; Convalescent Training in the Air Forces; Postwar Employment in the Aircraft Industry; Postwar Airfields.

Inexpensive Constant-Speed Propeller for Lightplanes Offered by Zimmer-Thomson

An inexpensive and simple automatic constant-speed propeller for lightplanes was described for the first time January 26 by Lloyd H Leonard, chief engineer of Zimmer-Thomson Corp, Long Island City, N. Y., speaking before the 12th annual meeting of the Institute of Aeronautical Sciences at Columbia University.

Leonard

The new propeller, named Iso-Rev by its manufacturers, Zimmer-Thomson, does not require any outside source of motive power for its operation, as is the case with electrically or hydraulically actuated constant speed propellers, but directly utilizes the energy of the rotating propeller shaft for its operation. Together with its automatic governor and pilot's selector control, it forms a single self-contained unit which, the company claims, can be easily and quickly installed in any light or medium horsepower plane.

The mechanism consists of two parallel V-belt pulley systems linking the propeller shaft with an adjacent governor shaft. One pulley system has a fixed drive ratio, while the other is composed of split pulleys and has a variable ratio. The difference between the two ratios will cause the blade pitch to change, Leonard explained. The ratio of the variable drive is controlled by the action of a centrifugal governor. When any deviation from the desired speed setting occurs, the governor changes the ratio of the variable drive causing pitch change which corrects the deviation and returns the propeller and engine to the selected speed.

Lewis School to Produce Manufacturers' Engineers

A new method of training men to meet special requirements of industry as "manufacturers' engineers" is outlined by the Lewis School of Aeronautics, Lockport, Illinois, in a letter addressed to the National Aeronautic Association.

The Lewis School plans to offer a technical education with alternate four weeks at a Junior Engineering College and in industry. "We think it is possible to turn out, in three years, a man well qualified, with sufficient fundamental technical education as a manufacturer's specialist engineer," writes Albert H. Luke, superintendent of the school.

"In addition," he asserts, "the young man will have enough practical experience to enable him to step right into the work without causing the disruption occasioned when hiring present engineering graduates fresh from college. The net result is that the manufacturer will have an engineer, tailor-made, to suit his particular business."

The industry must be prepared to pay the student a minimum salary to cover year-round living expenses, and in addition, its proportion of the cost of running the school, which is estimated at $800 per student for the three-year course, Superintendent Luke explained.

Consairway Reveals Impressive Record as 2nd Birthday Nears

By PEGGY GUETTER

A SECOND anniversary for Consairway is just around the corner—April 23, 1944—the contract carrier's thousandth trans-Pacific flight for the Air Transport Command is about ready for departure from Hamilton Field, California, and the full story of Consolidated Vultee's transport division is revealed for the first time.

Mitchell

Since its inception nearly two years ago, the aviation industry has watched Consairway's performance with interest. Recent developments find more than one commercial carrier in the "negotiating mood" should Convair's directors decide to divorce the division from the manufacturing company.

On the operations side of the ledger, performance statistics as of January 1, 1944 show more than 20,000,000 ton miles flown without accident.

Thirty-seven flight crews (15 more crews are in training) flying a complement of 10 converted Liberators operate approximately one schedule each day. At the present rate one ship can be out of service and in overhaul at all times. A recent monthly report shows planes averaging 11 hours and 20 minutes in the air per day.

Taking another monthly example, 40 scheduled trips were flown in October, 1943. And as this was written, the round-trip record from San Francisco to Australia stood at four days, 20 minutes, breaking the previous mark of four days, 43 minutes.

The personnel equation of Consairway can be best described as an "airman's airline." Most of the flight personnel have come from commercial airlines. Nearly every American carrier is represented, as are several foreign ones.

Richard S. "Dick", Mitchell, heads the supervisory staff as manager of the division. He learned to fly in his teens with money earned as a mechanic around Southern California airports, so Dick's been flying half of his 33 years. Catalina Airlines, United Air Lines and later American Export, for whom he and the late Richard McMakin performed survey flights, are marked in his log book. This, in addition, to leading the first group of twin engine bombers delivered shortly after the outbreak of war.

As assistant to Mitchell is Charles C. Gilbert, who commenced flying nine years ago at the age of 16. He demonstrated for Beech Aircraft Corp. and served as their distributor in Michigan and Pennsylvania. Later he was to deliver PBY Catalinas to Bermuda; serve as supervisor of Ryan School of Aeronautics Instrument school; direct test pilot training at Ford's Willow Run, and join Convair as flight captain, engaging in production test work as well as Catalina and Liberator deliveries.

S. F. Beatty, Jr., assistant to the manager, is in charge of the business and finance end of Consairway. Majority of his business experience has been with heavy construction equipment, building of roads and airports. Prior to joining the company, he was president and general manager of the Highway Equipment Company in San Francisco.

Kerry Coughlin is chief navigator. After two years in the Army Air Corps as a mechanic, he spent two years at Ryan School as ground school instructor. When he joined Convair's flight and service department as navigator, he participated in many delivery flights of PBY's and B-24's and was among two flight crews caught at Midway on December 7th. When Consairway was organized, he became chief navigator and has been a leader in organizing campaign to obtain CAA licenses for navigators.

Chief of flight is J. Edwin Jones, who first flew with the Navy in 1927. After a stint of commercial flying as a private pilot, he became manager of the Aviation Country Club at Worchester, New York, and later operated his own airport at Armonk, New York. Piloting for Eastern and Mid-Continent and two years as accident investigator for the CAA safety board were chalked up by Jones before he joined Convair in 1941 for PBY deliveries.

Typical of the spirit and enthusiasm surrounding the operation was the mass migration of employes and their families when Consairway's base was moved from San Diego to Fairfield, California, several months ago. Although exact numbers can't be given, several hundred left established homes in San Diego to move northward and "stay on the job" with Consairway.

Historically speaking, war packed many events into Consairway's two-year lifespan.

The operation was an outgrowth of Convair's flight operations department

(Turn to page 82)

Beatty

Gilbert

Jones

Coughlin

Manufacturers Ass'n Designates Officers

Samuel S. Bradley was re-elected chairman of the board of Manufacturers Aircraft Assn., at the annual meeting held in New York, Jan. 25. Frank H. Russell will continue as president and John A. Sanborn as general manager.

Following vice-presidents were elected: Clayton J. Brukner, Waco Aircraft Co.; Robert E. Gross, Lockheed; Jos. T. Hartson, Glenn L. Martin Co.; J. H. Kindelberger, North American; John M. Rogers, Douglas; Raymond S. Pruitt, Consolidated Vultee; and Raycroft Walsh, United Aircraft.

James P. Murray, Boeing, was re-elected as secretary and William E. Valk, Curtiss-Wright, was elected treasurer. New Board of directors for 1944 is comprised of: S. S. Bradley, chairman; Alexander T. Burton, North American; Charles H. Chatfield, United Aircraft; Frank N. Fleming, Douglas; G. Sumner Ireland, Lockheed; George D. Jones, Glenn L. Martin Co.; Charles Kingsley, Grumman; James P. Murray, Boeing; Raymond S. Pruitt, Consolidated Vultee; Frank H. Russell, William E. Valk, Curtiss-Wright and Ray P. Whitman, Bell.

The Association administers the patent cross-licensing agreement for the airplane industry of the United States. Two hundred and six patents relating to aircraft were reported by members during 1943. A total of 1434 patents have been brought under the operation of the Cross-License Agreement to date.

In drawing a comparison between present conditions and the situation which existed in 1918 when Mr. Bradley was the first managing executive of the Association, Mr. Russell said: "We take pride in the realization that the single greatest accomplishment which has brought this country and our Allies so far on our way to final victory has been the tenacity with which our manufacturers have adhered to farsighted production schedules and the maintenance of supremacy in the quality of our products through persistent leadership in basic research and design of combat equipment.

"Of twenty-two types of airplanes now in service, at least fifteen different models designed and built in this country have been acknowledged to excel all others in their respective categories. Although these airplanes are the best in the world today, it has recently been announced that new types incorporating important inventions developed by our engineers are about to be placed in production for the first time. These airplanes will appreciably increase the above ratio within the next few weeks."

New Editorial Group

Editors of house organs for member companies of the Aircraft Parts Manufacturers' Association held an organization meeting last month in Los Angeles at which Sara Hollenbach of the APMA office staff, Ted Burke of AiResearch Manufacturing Co., and Edwin M. Benedict of Century Metalcraft Corp. were elected to an executive committee. The group was formed to discuss mutual journalistic aims and problems connected with the aircraft parts manufacturing industry.

Knowles V. P. of Goodyear

Thomas A. Knowles has been promoted to a vice presidency of Goodyear Aircraft Corp., P. W. Litchfield, chairman of the board of the parent company, The Goodyear Tire and Rubber Company announces.

Knowles

After receiving his license as a balloon and airship pilot, Mr. Knowles was transferred to the Goodyear Zeppelin Corp., in 1928, serving there during the construction of the airships Akron and Macon. Later he made a trip to Germany on the Graf Zeppelin and studied airship construction at Luftschiffbau, returning to Goodyear as development engineer. In 1941, he took over the management of the customer engineering contact departments of Goodyear and later became sales manager.

Ford Uses Magnetic Inspection

Ford Motor Co. announces the extensive use of magnetic particle inspection in finding both surface and sub-surface flaws in steel. One reason for the wide use of this technique is the fact that the magnetic test is a non-destructive test, says a Ford announcement. The piece to be tested need not be destroyed to determine its suitability for its intended use.

Aircraft Now 42.8% Of All Automotive Group's Output

Aircraft today comprises 42.8% of the automotive industry's total war deliveries, against 22.8% in the first quarter of 1942, the Automotive Council for War Production asserts. The industry is producing aircraft equipment at nearly eight times the rate that it was in the first quarter of 1942, and the rate is steadily moving upward.

The Automotive Council's aircraft engine group, together with the airframes committee, today is merged in the Central Aircraft Council, headed by Ernest R. Breech, president of Bendix Aviation Corporation.

AAF Air Furnace

Norge Division, Borg-Warner Corporation announces development of a new portable, self-powered, automatic forced warm air furnace, weighing only 45 pounds and comparable to an average traveling bag in size. It was designed for the Army Air Forces for a variety of undisclosed ground and flight applications, Howard E. Blood, president of the division, announces.

In tests, the unit operated successfully at five miles altitude and with temperatures as low as 70 degrees below zero.

Bell Aircraft Pays $60,000,000 V Loan, Arranges New Credit

Bell Aircraft Corporation has paid off in full its obligations under a V loan credit of $60,000,000, negotiated with 28 banks on January 25, 1943, having converted its Army airplane contracts to a basis of government advance payments.

At the same time, a new $10,000,000 VT loan, to run until December 31, 1946, was consummated with the New York Trust Company, Bankers Trust Company, and Bank of Manhattan Company, all of New York City; Manufacturers and Traders Trust Company and Marine Trust Company of Buffalo, N. Y.; and the Union Trust Company of Pittsburgh.

The new loan has important advantages in regard to contract termination not available in the earlier form. Upon completion of the transaction, all of the Corporation's manufacturing business, both at Buffalo and in Georgia, will be under the advance payment system.

General Aircraft Corp. Acquires Control of Tennessee Company

General Aircraft Corporation, Astoria, L. I., New York, has acquired control of the Tennessee Aircraft Company, of Nashville, Tennessee. H. J. Maynard, Jr., president of General, points out that this rounds out the Corporation's operations by adding an established aluminum alloy fabricating unit to its present glider manufacturing facilities.

General, which in peacetime manufactures Skyfarers, is reported now to be one of the largest producers of gliders for the Army Air Forces.

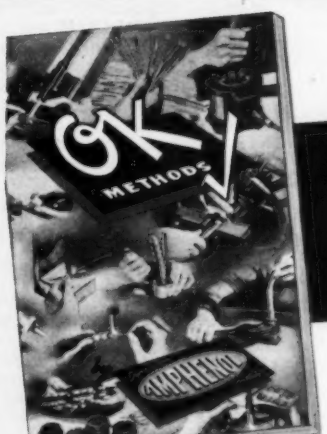
Lewis E. Reisner, president of Tennessee Aircraft, will remain in charge of the company's subcontracting business for both Army and Navy contractors.

Fairchild Aviation Corp. Adopts Descriptive Name

Fairchild Aviation Corporation announces a change of name to Fairchild Camera & Instrument Corporation.

James S. Ogsbury, president, said the board of directors felt that in view of the present business activities of the corporation, consisting primarily of manufacture and sale of precision instruments and equipment, the old name was not descriptive, and, in fact, was somewhat misleading.

The company was the first of a group of concerns founded by Sherman M. Fairchild who is chairman of the board of directors. Fairchild Aerial Surveys, Inc., an aerial mapping firm, is a subsidiary. Mr. Fairchild is also chairman of the Fairchild Engine & Airplane Corporation, which builds Fairchild planes and Ranger aircraft engines. The action of changing the name of Fairchild Aviation to Fairchild Camera & Instrument Corp., is expected to eliminate confusion between the two corporations.



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Consolidated Is Biggest Producer, Girdler Says

National production figures for the aircraft industry for 1943, compiled by the War Production Board, show that Consolidated Vultee Aircraft Corporation is the world's largest producer of airplanes, Tom M. Girdler, chairman of the board, discloses. The company in 1943 delivered more airplanes by number and by weight than any other manufacturer, he explained.

A telegram from the Aircraft Production Board advised that Consolidated Vultee deliveries of more than 126,000,000 pounds including spares compared with 115,000,000 pounds delivered by the second largest producer. The third largest producer delivered 73,000,000 pounds.

Mr. Girdler states: "Consolidated Vultee in 1943 delivered over 12 per cent by number and over 16 per cent by weight of all aircraft built in the United States. The difference between numbers and weight in percentage figures is due to the fact that the company produces more heavy four-engine bombers than any other manufacturer."

In the rating of all airplane manufacturing plants, WPB listed the San Diego division as the most efficient plant engaged in the production of heavy bombers. Three other divisions at Vultee Field, Calif., Nashville, Tenn., and Wayne, Mich., were listed as the most efficient units in their respective production categories: building basic bombers, single engine bombers and advanced trainers.

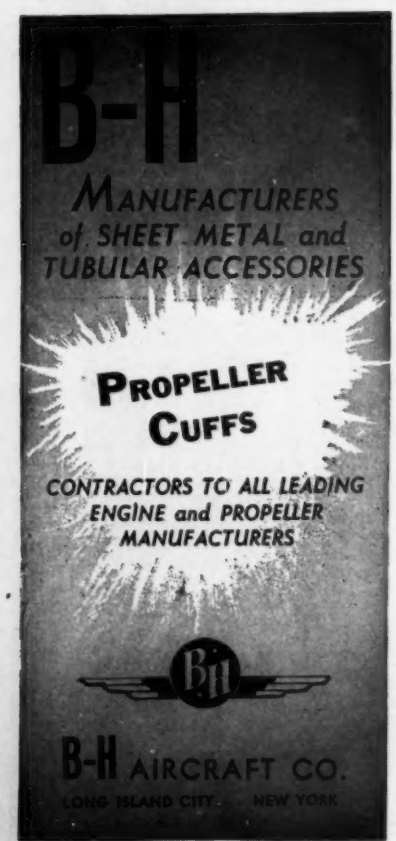
The San Diego division had the nation's highest output per man per day in the production of heavy bombers, the report stated. The average was 8.2 pounds for every man day worked. The second most efficient company produced 5.8 pounds per man day, while the national average, all companies producing heavy bombers, stood at 4.6 pounds.

Mundy Peale Made Director Of Republic Aviation Corp.

Mundy I. Peale, who has directed the Indiana Division through a record-breaking six months of production, has been elected to the Board of Directors of Republic Aviation Corporation, President Fred Marchev announced.

Under Mr. Peale's management, the Indiana Division is reported to have repeatedly doubled and redoubled its production of Thunderbolts. These gains at the Evansville plant are said to have played an important part in advancing the company's overall output whereby it has gained a rating of having produced more fighter planes than any other fighter plane manufacturer, according to the company statement.

Mr. Peale joined Republic in 1939 as assistant director of exports and a year later headed the department of Military Contracts. He became divisional manager in mid-July of last year.



Consairway

(Continued from page 79)

which delivered planes contracted for with the company. A training program was set up in navigation and long-range flight for deliveries to Bermuda, Hawaii and Manila.

With increasing tempo of deliveries to the Pacific, it was necessary to increase air carrier service for return of flight crews to the West Coast. General George, Air Forces Ferrying Command, authorized Convair on April 16, 1942 to proceed with plans for operation of two LB-30 aircraft over the proposed Australian route.

One week later the first official Consairway trip left Hamilton Field with a cargo of priority material. Nine days later the Liberator returned with 22 Ferrying Command personnel aboard. Richard McMakin was operations manager of the new Consairway division.

At the start, conditions en route were primitive . . . communications deficient, aircraft servicing facilities at a minimum, fuel supply uncertain, and even the supply of food a problem. Crews slept in their planes. Many fields had no lighting facilities and reliable weather forecasting did not exist.

On the question of weather, Consairway adopted the policy of taking off and, upon encountering unflyable weather, returning. All trips took off and none returned.

Today a maintenance base built by the Air Service Command in Australia finds Consairway operating on a three-shift basis, servicing at least two of its aircraft each day. The average plane layover time is eight hours as against 24 before completion of the project.

With the entrance of United Air Lines as a Pacific air carrier in August of 1942, a reciprocal service was arranged, in which UAL supplied maintenance facilities and personnel in Hawaii while Consairway performed similar services in Australia.

Below is a statement of per factor costs on the operation from its commencement through October 1943:

	Per Factor Costs			
	Per Mile	Per Hour	Per Ton Mile	Total Expenditures
Transport Contract No. 40814				
Operating Costs to October 31, 1943	$ .8352	$165.63	$ 2675	$4,755,144.20
OPERATING COSTS EXCLUSIVE OF CONVERSIONS	$ .7761	$153.91	$ .2485	$4,418,651.25
Combined Contracts 40814 (Transport) and 33927 (Australia Maintenance Base)				
Operating Costs to October 31, 1943	$ .9095	$180.37	$ .2913	$5,178,189.40

Notes: (1) The combined contract per factor costs are shows as a matter of record rather than information pertinent to performance, inasmuch as the Australia Base may be considered supplementary to operations.

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To help maintain its crowded war-time schedule, Pan American World Airways depends increasingly upon the Rectostarter. They've learned, through actual use, the dependability of this Mallory portable DC power supply in starting aircraft engines and as a source of power for plane lights, radio and instruments while on the ground.

Connected to any 230 or 460 Volt 3 phase AC outlet, the Rectostarter provides a continuous source of DC current that is unaffected by temperature variations or weather conditions. It features the "Time-Tried and Proven" Mallory magnesium copper sulphide rectifiers with no moving parts —nothing to wear out. And in addition to starting power, it can be used to taper charge 12 and 24 volt aircraft batteries without removing them from the plane.

For applications that do not require portability, the Rectostarter is also available in stationary units with one or more DC outlets. See your Mallory distributor, or write direct.

Help Win the War— Buy Bonds

P. R. MALLORY & CO., Inc., INDIANAPOLIS 6, INDIANA

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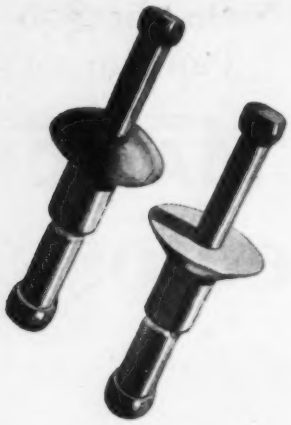

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Today Cherry Blind Rivets are plentiful—five times as many rivets as a year ago. Deliveries are current to an increasing number of customers.

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Manufacturing Personnel

Brutus Eddy

Sperry Gyroscope Co., lists the following additional personnel changes: **F. H. Smith** has been named flight operations superintendent of research laboratories, succeeding **G. E. Bevins,** who becomes liaison supervisor. **E. F. Murtagh** has been appointed production control superintendent at the electronic unit at the Nassau plant.

W. Paul Eddy, Jr., has been made Materials Engineer, of the Pratt and Whitney Division, United Aircraft Corp.

Grayson Heat Control, Ltd., announces promotion of **T. T. Arden** to presidency of the plant. He was formerly vice president and general manager, and has just been re-elected president of the Aircraft Parts Manufacturers Association.

J. E. I'Anson has been appointed works manager of the Menasco Manufacturing Co.

Appointments in the recently created chemical division of the B. F. Goodrich Co., are announced: **William I. Burt,** general manager of plants; **Dr. Frank K. Schoenfeld,** director, technical and development; **Dr. Victor E. Wellman,** director of purchases; and **Harry E. Foster,** general auditor.

Harry T. Parson has been made an administrative assistant to **C. F. B. Roth,** vice president in charge of sales of the Aircooled Motors Corp.

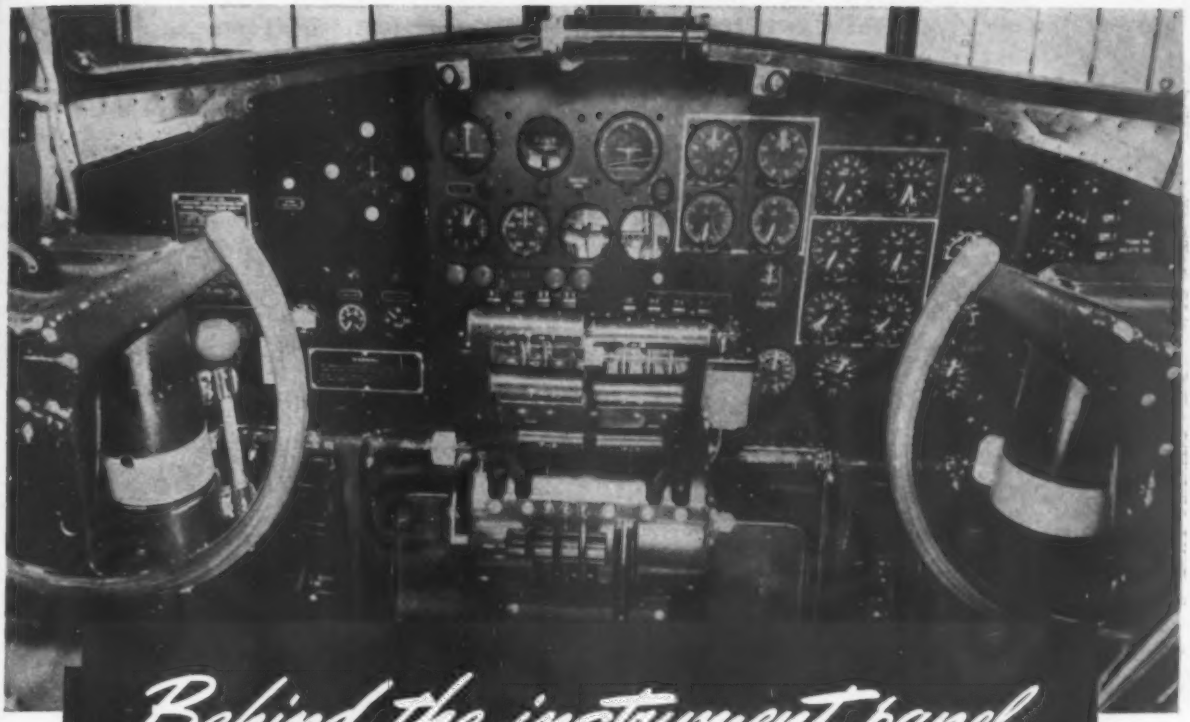
Richard H. Connors has been elected president of the American Aviation Corporation, Jamestown, N. Y.

American Bosch Corp., has announced the appointment of **Martin J. Berlyn** as vice president in charge of engineering.

Paul Biklen, public relations director of Kaiser Cargo, Inc., Fleetwings Division, has been granted a leave of absence to join the Armed Forces.

Lee N. Brutus, who was asked by the Navy to become president of the Luscombe Airplane Corp., Trenton, N. J., in April, 1942, has announced his resignation from the company.

Boots Aircraft Nut Co. announces that **William F. Arnoldy,** head of the firm's Detroit office, will also be in charge of its Chicago office, opened Jan. 10 at 221 N. La Salle St. there.



Behind the instrument panel of many a Flying Fortress... RESISTOFLEX *hose assemblies*

ON the instrument and gauge lines of the Boeing Flying Fortress...and on medium pressure hydraulic lines also... Resistoflex hose, with its inner core of COMPAR, provides freedom from the danger of collapsing, gumming or internal erosion.

COMPAR, the unique elastic plastic, is produced in many formulations, each designed for the specific job. In Resistoflex aircraft hose assemblies, it is formulated for complete immunity to oils, hydraulic fluids, gasoline, fuel blends...even those containing the highest percentage of aromatics.

In addition, the smooth surface of COMPAR aids in reducing turbulence and skin friction to a minimum.

Though lighter than other lines of similar construction, Resistoflex aircraft hose provides great strength and toughness . . . withstands heavy shock loads . . . is unaffected by vibration and constant flexing.

Hose assemblies are supplied in standard diameters and lengths for instrument and medium hydraulic lines, in conformity with applicable Army and Navy specifications.

For full details, write for the Resistoflex Aircraft Catalog.

GLOVES PROTECT BOTH SKIN AND METAL

Safeguards against dermatitis for the worker —protection against damage to metal parts —Resistoflex Dual-Purpose Industrial Gloves give both. Made of COMPAR, the same elastic plastic that gives Resistoflex hose its unique properties, these gloves are impervious to organic solvents. Containing no sulphur, they will not tarnish highly polished metal parts, are ideal for delicate inspection work. Write for full details.

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LOW AND MEDIUM PRESSURE INSTRUMENT, HYDRAULIC AND VACUUM HOSE ASSEMBLIES—MANOMETER TUBING, DIPPED AND MOLDED SPECIALTIES.

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Re-fill for fighting lungs

HIGH-flying war planes use up plenty of oxygen. Cylinders must be recharged frequently—often at remote stations which lack electrical or power facilities. Kidde compressors deliver this life-giving oxygen — surgically clean — wherever our men fly and fight.

Compressors are one of the many vital contributions which Walter Kidde & Company are making to better, safer flying. Gases-under-pressure, harnessed by Kidde, are serving as emergency power for shot-up landing gear, brakes, bomb-bay doors and in flotation gear for forced-down flyers.

Kidde equipment developed for war planes will play an important part in the coming Age of Flight. Perhaps *you* have a job that can be done best by compressed gases. Our Research and Development Department will be glad to help you make it work. Drop us a line!

Kidde

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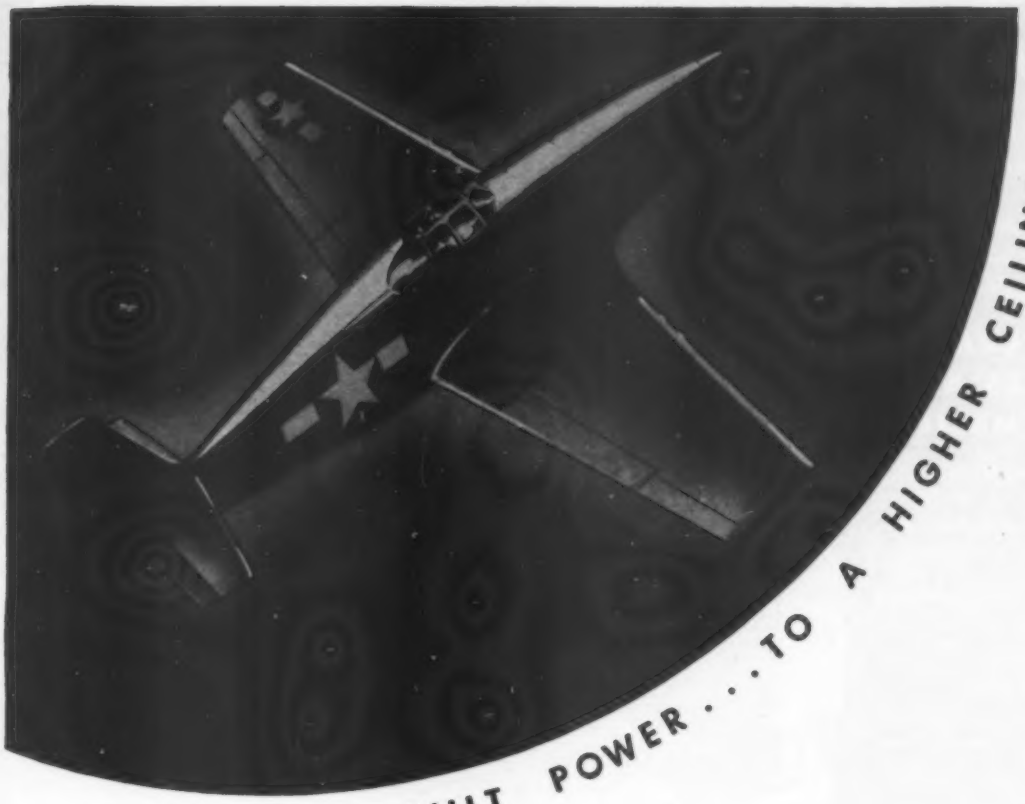
Aviation Securities Over the Counter

(Courtesy Merrill Lynch, Pierce, Fenner, and Beane)

	January 29, 1944 Bid	Asked	February 5, 1944 Bid	Asked
AIRLINES				
All American Aviation	4	4⅜	3⅞	4⅛
American Airlines pfd.	109	111	100	111
American Export Airlines	23⅛	24	22½	24½
Braniff	13⅞	14	14	14⅛
Chgo. & So. com.	12⅜	12⅞	12¼	12¾
Chgo. & So. WTS	4½	5½	4½	5½
Contl. Airlines	8¾	9½	8¾	9¼
Delta Air	24	26	24	26
Island Airlines	3⅜	3⅞	3¼	3⅝
Mid Continent	5	5⅜	5	5¼
National	11½	12½	11¾	12½
Northeast Airlines	8⅜	8¾	8½	8⅞
Penn. Cent. Airlines pfd.	29	29¾	29¾	30½
MANUFACTURERS				
Aeronca	3⅜	4	3⅜	4
Air Associates com.	8¾	9¼	9	9½
Aircraft & Diesel	1	1⅛	1⅛	1⅛
Aircraft Accessories	2⅝	2¾	2½	2¾
Airplane & Marine	1⅞	2⅛	1⅞	2⅛
Airplane Mfg. & Supply	65c	75c	65c	75c
Central Airports	⅝	⅞	⅝	⅞
Columbia Aircraft Prod.	45c	75c	45c	75c
Contl. Aviation	2⅜	2⅞	2¾	3⅛
Delaware Aircraft pfd.	¼	.....	⅛	.....
General Aviation Equip.	1⅝	2⅛	1⅝	2
Globe Aircraft	½	1⅛	½	1⅛
Harlaw Aircraft	⅛	¼	⅛	¼
Harvill Corp. common	2⅛	2⅜	2¼	2⅝
Harvill Corp. preferred	60c	90c	75c	90c
Interstate Aircraft & Eng.	5½	6	5½	5¾
Jacobs Aircraft	3	3⅜	2⅞	3¼
Kellett Aircraft	1⅞	2	1⅞	2
Kenner Motors	70c	80c	70c	80c
Liberty Aircraft	10¾	11¼	10⅜	10⅞
Luscombe	½	¾	½	⅝
Menasco Mfg.	90c	1.05	90c	1.10
Northrop Aircraft	4⅞	5⅛	4¾	5
Piper Aircraft common	4¾	5⅛	4¾	5⅛
Piper Aircraft preferred	13	14	13	14
Pitts Aviation Ind.	5	....	4½	.....
Rohr Aircraft	5⅛	5⅝	5	5⅜
Std. Aircraft Prod.	3½	4	3¼	4
Taylorcraft common	1½	1¾	1½	1¾
Taylorcraft preferred	5	5½	5	5½
Timm	40c	50c	35c	45c
Utd. Aircraft Prod. pfd.	14¾	15¾	14¾	15¾

Navy's Top Air Officers Visit Ryan

The Navy's top administrative and technical aviation men recently made a tour of inspection of the Ryan Aeronautical Co. at San Diego. Part of the group are shown above, left to right: Artemus L. Gates, Assistant Secretary of Navy for Air; Capt. Leland D. Webb, Bureau of Aeronautics' General Representative; T. Claude Ryan, President of the Ryan Co.; and Rear Admiral D. C. Ramsey.



★ PACKARD-BUILT POWER . . . TO A HIGHER CEILING ★

Two more miles of blue sky for the Mustang to fight in . . . thanks to its Packard-built power! And to keep the superb North American fighter up there, men of the Army Air Forces are being factory-trained at the Packard Aircraft School to service this precision-built engine on the fighting fronts.

BYRNE DOORS AT THE PACKARD AVIATION SCHOOL

To speed up handling of planes, to save operating man-power, the hangar of the Packard Aircraft School is equipped with Detroit-Built Byrne Canopy Doors. A flip of a switch and the doors open swiftly, smoothly, surely.

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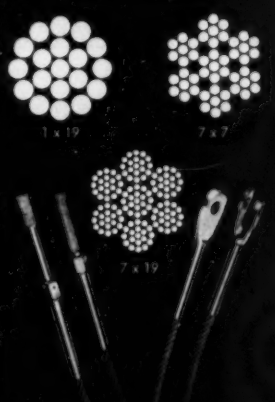
All Macwhyte aircraft products are made to conform to A-N specifications . . . including:

"Safe-Lock" Terminals
. . . in eye end, turnbuckle end, stud end and fork end.

Aircraft Slings
. . . custom-built for your work. Both standard wire rope and braided slings.

Tie-Rods
. . . for internal and external bracing. Streamline, square, round.

"Hi-Fatigue" Cables
in these constructions



MACWHYTE COMPANY
2953 Fourteenth Avenue
Kenosha, Wisconsin

Manufacturers of MACWHYTE "Hi-Fatigue" Aircraft Cables—"Safe-Lock" Cable Terminals — Aircraft Tie-Rods—Braided Wire Rope Slings —and Wire Rope for all requirements.

Lockheed's Proposed New Modification Center

Construction is scheduled to begin this month on the new Navy Lockheed Service Center in the San Fernando Valley, a modification and rework base to be used exclusively for Navy aircraft, according to Carl B. Squier, Lockheed Aircraft Corp. vice president who released the above drawing of the center. Owned by DPC and operated by Lockheed's Service Division, the base will be ready for modification work by April or May. It will occupy a 77-acre tract near the main Lockheed plants in Burbank and will cost $3,500,000. Construction supervision and equipment procurement will be under Gil Rigdon, plant engineer of Lockheed Plant A.

Manufacturing Briefs

CHERRY RIVET CO. announces that production has reached an all-time high and that prices of the company's blind rivets have gone down. In August, 1942, the average unit price was 4½ cents. Four downward changes have brought the present average price to 1½ cents.

NASH-KELVINATOR CORP. reports that at the annual meeting of its stockholders, held in Baltimore January 19, all members of the board of directors were reelected, and that at a subsequent meeting, January 20 in Detroit, all present officers of the corporation were renamed.

FAIRCHILD ENGINE AND AIRPLANE CORP. announces the opening of a West Coast office under the supervision of Alvin P. Adams, vice president, 9126 Sunset Blvd., Los Angeles.

GENERAL AIRCRAFT CORP. has acquired the Tennessee Aircraft Co., Nashville, an established aluminum alloy fabricating unit. Lewis E. Reisner, president of the Tennessee company, will remain in complete charge.

CONSOLIDATED VULTEE AIRCRAFT CORP. announces Army Air Forces approval of 835,000 square feet additional concrete pavement at its Fort Worth Division—375,000 square feet inside the plant area and 460,000 square feet on the Fort Worth Air Field, adjacent to Convair's east fence line, to serve as a flight operations service area for the plant. Total cost will be in excess of $320,000.

HAMILTON STANDARD PROPELLERS, Division of United Aircraft Corp., reveals that another Army fighter plane has acquired its propellers—the P-47 Republic Thunderbolt, which has appeared with four-bladed Hydromatics. The new blades are like those on the Grumman Hellcat, except that there are four instead of three.

ALLENTOWN DIVISION, Consolidated Vultee Aircraft Corp., reveals that modification work on the Curtiss-Wright SB2C-1 Helldiver is being performed there. The first completed plane, incorporating late changes in design and equipment, was delivered "battle-ready" last week.

FORD MOTOR CO. announces that more than 20,000 Pratt and Whitney aircraft engines have been produced and delivered to the Army since Pearl Harbor. The engines were adapted to mass assembly along automobile principles.

Financial

NASH-KELVINATOR CORP., reports net profit for the first quarter of corporation's fiscal year (October 1 to December 31) was $1,060,261, after provision of $2,526,000 for taxes. This represents an increase of $405,300 over net for corresponding period of 1942 when profit was $654,930.

CONSOLIDATED VULTEE AIRCRAFT CORP., directors declared a dividend of 31¼c on each share of preferred stock, payable March 1 on stock of record February 18, and 50c a share on common stock, payable February 15 on stock of record February 5.

NORTH AMERICAN AVIATION CORP., announced that because of accounting problems incident to the recent contract with the government, the annual meeting scheduled to be held February 28, will be held at a later, as yet undesignated date.

Courageous Men Are Doing Brave Deeds in the Upper Air

The name "IRVIN" on the harness means the chute is produced in an Irvin Factory with over 23 years' experience and skill in chute-making.

Literature can be had by school or training executives for the asking. Address Main Office, Buffalo, N. Y.

IRVING AIR CHUTE CO., Inc., 1670 Jefferson Ave., Buffalo 8, N. Y.
Factories at other points in the United States, Canada and England

The CATERPILLAR CLUB

Founded in 1920. There is only one qualification for a life membership: in an emergency men and women who have saved their lives with Irvin Air Chutes.

Many of the personnel of the flying services engaged in all phases of war have successfully used their Irvin Air Chutes in extreme emergency.

The word CATERPILLAR and the representation of a caterpillar are registered trade-mark features of Irving Air Chute Co., Inc. We are anxious that the records of the Club be kept as complete as possible in the Club Register and members, upon enrollment, will receive a caterpillar token with the name inscribed thereon. Communicate with Main Office.

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Air Chutes

SERVING THE UNITED NATIONS' AIR FORCES

TUBE CLAMPS

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2 bolt
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are available from stock to take care of emergency needs.

We are producing millions of them for

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—and many other prominent aircraft manufacturers.

Net prices range from $25 to $50 per thousand.

We solicit your inquiries and assure you of service to meet all requirements.

Write for catalog and sample kit.

AVIATION DIVISION

KREGER

L. F. KREGER MANUFACTURING CO.
550-A W. 35th St., Chicago 16, Ill.

National Aviation Corp. Analyzes Factors Which Cause Aviation Stocks to Fluctuate

In its annual report to stockholders, National Aviation Corporation, in its analysis of aviation securities emphasized conditions which have caused market values to flunctuate during the year.

Manufacturers of aircraft, for their own protection, the report points out, were forced to stress publicly in the most forthright manner the dangers to which their industry, with limited capital, was exposed in the tremendous demand for continued expansion. Problems related to renegotiation, postwar reserves, termination of contracts, employment and excess material disposal, have all been publicized widely. In the face of these disturbing realities there is little wonder that the market value of their securities declined during 1943, the financial house states.

On the other hand, the airlines caught the imagination of the public and their securities rose to new recent highs in the Spring, followed by a moderate setback later in the year when it became apparent that the industry was faced with the possibility of high taxes and other limitations on earnings resulting mainly from reduction in rates for passengers, mail and express.

Net assets on December 31, 1943 were $7,066,239; net assets per share, $15.82. This compares with 1942 figures of $6,746,140 and $15.11.

Classification of assets of the company at the close of 1943 shows the following comparison of securities in its investment portfolio:

	December 31 1943	1942
Aircraft	35.5%	51.0%
Airline	24.2%	28.3%
Other	17.7%	0.7%
Cash, U. S. Securities and Receivables—Net	22.6%	20.0%
	100.0%	100.0%

Aircraft and Airline Securities in National Portfolio

No. of Shares	Security	Market Value	Average Cost
	Aircraft		
22,770	Bell Aircraft Corporation	$ 250,470.00	$ 318,324.52
5,000	Bendix Aviation Corporation	171,875.00	190,262.50
12,200	Boeing Airplane Company	172,325.00	194,190.81
17,100	Consolidated Vultee Aircraft Corporation	196,650.00	188,574.10
10,000	Consolidated Vultee Aircraft Corporation $1.25 Cumulative Convertible Preferred	185,000.00	247,789.91
14,400	Curtiss-Wright Corporation "A"	241,200.00	298,739.37
4,200	Douglas Aircraft Company, Inc.	202,650.00	270,218.00
2,900	Grumman Aircraft Engineering Corporation	32,263.00	42,536.61
17,400	Lockheed Aircraft Corporation	274,050.00	275,198.12
4,132	Niles-Bement-Pond Company	44,935.00	27,550.00
5,000	Thompson Products, Inc.	170,000.00	144,225.00
17,000	United Aircraft Corporation	459,000.00	500,982.63
2,100	United Aircraft Corporation 5% Cumulative Convertible Preferred	215,775.00	212,650.00
		$2,616,193.00	$2,911,241.60
	Airline		
2,800	American Airlines, Inc.	$ 168,000.00	$ 137,548.56
12,200	Braniff Airways, Inc.	155,550.00	34,471.60
4,700	Chicago and Southern Airlines, Inc.	56,400.00	32,147.00
5,750	Chicago and Southern Airlines, Inc. V. T. C.	69,000.00	34,857.05
4,500	Eastern Airlines, Inc.	164,250.00	68,467.91
17,000	Mid-Continent Airlines, Inc.	87,125.00	68,042.50
11,500	Northwest Airlines, Inc.	207,000.00	126,689.10
7,500	Pan-American Airways Corporation	237,188.00	143,553.62
10,800	Pennsylvania-Central Airlines Corporation	151,200.00	119,839.40
3,600	Pennsylvania-Central Airlines Corporation $1.25 Cumulative Convertible Preferred	105,300.00	85,575.00
8,000	Transcontinental and Western Air, Inc.	150,000.00	113,636.51
10,000	United Air Lines, Inc.	236,250.00	148,493.17
		$1,787,263.00	$1,113,321.43

DPC Authorizations

REPUBLIC AVIATION CORP., for additional plant facilities at Farmingdale at cost of approximately $150,000, overall commitment of about $18,000,000.

REYNOLDS METALS CO., Richmond, Va., to provide plant facilities at Chicago, Ill., at cost of approximately $1,500,000.

GENERAL MOTORS CORP., for additional facilities at plant in Trenton, N. J., at cost of approximately $480,000, overall commitment about $11,600,000.

LOCK NUT CORP. OF AMERICA, Chicago, Ill., to provide equipment at a plant in Chicago at cost of approximately $25,000.

Financial

EDWARD G. BUDD MANUFACTURING CO., directors declared a quarterly dividend of $1.25 a share on prior preferred shares to be paid March 1 to holders of record Feb. 19.

AMERICAN BOSCH CORPORATION reports net profit for nine months ended Sept. 30, 1943, of $652,116 after charges, provision of $4,872,000 for taxes, and after deducting $509,000 postwar credit, and after a transfer of $318,000 to reserve for postwar readjustment. This is equal to 94c a share on 692,644 of capital stock.

TODAY your place is to help win complete victory, and that means air power—air power to carry our bombs, troops and supplies to the far flung fronts.

Guiding these life lines of the air are the navigators. When victory is achieved these men—the navigators—will have an equally important place in commercial aviation. Let the Weems System Of Navigation help you find your place in the Sun.

You may avail yourself of the Weems System either through our home study course or through our individual or class instruction.

You who wish to further your present knowledge of navigation will find many of the texts and instruments used in the Weems System invaluable and may purchase these separately without necessarily taking the full air navigation course.

Weems equipment may be ordered direct or through dealers in the following cities: New York, N. Y.; Houston, Tex.; Seattle, Wash.; Los Angeles, Calif.; Chicago, Ill.; Detroit, Mich.; Baltimore, Md.; Philadelphia, Pa.; Washington, D. C.; Lincoln, Neb.; Miami, Fla.; Denver, Col.; and Salt Lake City, Utah; also in Vancouver and Ottawa, Canada.

SEA AND AIR NAVIGATION TEXTS: EQUIPMENT AND INSTRUCTION

AIR NAVIGATION. This is the famous Weems Gold Medal Text Book. It is a standard text book on air navigation and clearly and thoroughly surveys the four principal methods of air navigation: Piloting, Dead Reckoning, Radio Position Finding, and Celestial Navigation and Meteorology. Used as a text book at schools, colleges, etc. $6.50

LEARNING TO NAVIGATE. Elementary Marine Navigator. Weems & Link $1.50

RADIUS OF ACTION OF AIRCRAFT. Tornich $3.00

SHORT HISTORY OF NAVIGATION $1.50

NAVIGATION CHARTS. Series of 5 New Skeleton Navigation Charts, Scale, 1:5,000,000, for both north and south latitudes and covering the earth. Suitable for Dead Reckoning and Radio Navigation. Chart No. 1, Lat. 0 to 30°; Chart No. 2, Lat. 25 to 55°; Chart No. 3, Lat. 50 to 80°; Chart No. 4, Lat. 75 to 90°; Chart No. 5, Lat. 30 to 53° (Extension of No. 1). Price per chart $1.00

DALTON MARK VII COMPUTER $7.50

E-6 B PLOTTER (PLASTIC) $10.00

AIRCRAFT PLOTTER, MARK II. (Department of Commerce Type). Especially designed for use with the Department of Commerce Aeronautical Charts. Scales 1:1,000,000 and 1:500,000 ..... $2.00

MARK III-A PLOTTING BOARD $12.00

NAVY PLOTTER NO. 641 ..... $1.25

NAVY PLOTTER NO. 700 ..... $1.50

LINE OF POSITION BOOK. One of the quickest and easiest methods of finding the altitude and azimuth of a Heavenly Body $1.50

ILLYNE STAR CHART. 31 by 31 inches with descriptive booklet for finding and learning the navigation stars $1.00

STAR ALTITUDE CURVES. This original method affords the quickest and simplest means of determining position by the stars. A fix may readily be determined in one minute. In ordering, specify the 10° band of latitude desired. 3rd ed., 1940. Larger scale. 3 colors. Completed for 5° S. to 70° N. Per 10° band of latitude $5.00

HYATT. A Navigator's Introduction to Astronomy $2.50

WEEMS SYSTEM *of* NAVIGATION

ANNAPOLIS, MARYLAND

RecordingInstrument Expected to Improve Instruction Methods

Through use of a "sound and wire" recording device, the Civil Aeronautics Administration expects to unify and improve flight instruction methods. A detailed study of variations in teaching is now underway.

Plans of the CAA for study of student and instructor behavior in flight at a score or more of War Training Service flight training centers will be slightly delayed however because of prior orders for the instruments by the Army and Navy for use in other forms of military activity.

The Navy, following the suggestion of the CAA, in October 1942, had adapted the recorder to a study of its own instructors, while the Air Force and other parts of the Army have used it to record actual battle sounds and conversations of fighters. The recorder was carried in a Flying Fortress on a raid over Le Bourget airport at Paris, recording every word the crew spoke before, during and after the raid. It was also used in the Salerno engagement, recording action and sounds in the vicinity of a battery of field artillery.

When the military needs have been supplied, the research director of the CAA, Dean R. Brimhall, hopes to continue the program he has initiated with the National Research Council for the study of routine methods of flight instruction.

First, the CAA tried to put standard recording devices in the training planes, but these were too much affected by rough air. Next, small radio transmitters were tried in the plane, with a receiver and mechanical recorder of some sort on the ground. The problem here was to get enough frequencies assigned to make a volume study by using several planes at each field.

Shown above is the wire recorder for use in plane, and combined instrument for use in recording and playback on the ground. Hand at left holds chin microphone for use in air, and girl holds ground microphone.

In July, 1942, Dr. Brimhall learned of the wire recorder originally developed by Marvin Camras, and brought to a state of practical use by the Armour Research Foundation of Chicago. Whereas other magnetic recorders use a steel tape, thus limiting the amount of material which may be recorded and involving difficulties with kinking, the Armour machine records magnetically on a steel wire only four-thousandths of an inch in diameter. This wire runs approximately five miles to the pound and two hours of material can be recorded on a single pound. The fidelity of the recording is unusually high, and the playback can be accomplished on the same machine.

The instrument rearranges the molecules of the wire to produce sound when it is fed through the playback slot. It costs about $10 for enough wire to record an hour of sound. The same machine will erase the sound on the wire and leave it free for recording again on the same wire. This can be done again and again.

The first instrument available after the recorder was reduced to practicability was installed in a training plane to delve into a problem that existed at a certain school where some students were having difficulty in learning to spin and to recover from spins. When the wire was played back on the ground, the chief instructor found that one instructor reacted to the spin far more excitedly than was good for his students. He allowed his voice to rise in pitch and volume and literally scared the student into doing the maneuver incorrectly.

As in most cases where instruction methods are at fault, the instructor himself was among the most surprised. This ability of the recorder to reproduce the exact words and recreate the exact atmosphere of nerve tension during an instruction session, coupled with the requirement that instructors follow verbatim standard "patter" in giving their lessons, makes possible the first scientific approach to the business of teaching persons to fly. The CAA tried for two years to get accurate information on what was happening in the training plane during instruction.

Difficulties centered around equipment that would not operate successfully in rough air, and around the problem of getting frequencies on which to operate radio transmitters in each of several training planes. The tiny wire on the new recorder is fed through a simple grip where electrical energy rearranges the molecules of the wire. This produces sound when the wire is fed through the playback.

This is the first application of the recorder in this country, and by any country for instructional study purposes.

In the same program, the CAA is studying photographs made in flight of a duplicate instrument panel. This panel includes a special device which shows the position of the rudder, flipper, ailerons and throttle simultaneously with the reading on standard instruments. It is possible from these photographs to detect mishandling of the controls in standard maneuvers, and to correct the piloting faults of students or instructors. The duplicate panel is installed just back of the rear seat in a tandem trainer, and the camera photogrophs it by means of a mirror inclined at the proper angle.

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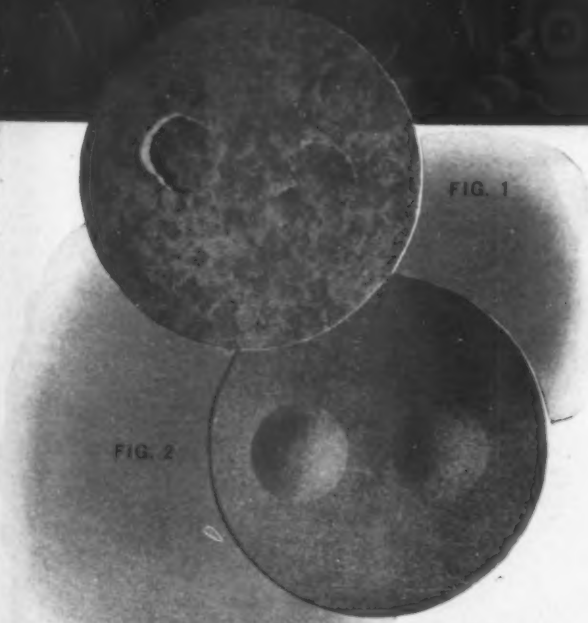
FLEXIBLE SHAFT AND CASE ASSEMBLIES
TACHOMETER ADAPTERS
HYDRAULIC VALVES

CAA Publications

A pamphlet entitled, "Design Recommendations for Fire Protection of Aircraft Powerplant Installations," by H. L. Hansberry has been issued by the Civil Aeronautics Administration. The pamphlet is known as Technical Development Note No. 31.

The Safety Regulation Bureau of CAB recently announced the issuance of Flight Engineering Report No. 12 entitled, "The Effect of Air Temperature Upon the Rate of Climb of an Airplane equipped with a Constant Speed Propeller."

DON'T LET BUGS GROUND 'EM!



BURIED IN MILDEW INFESTED EARTH FOR 30 DAYS

Fabrics finished with conventional 7 to 12 coat dope systems lose approximately 60% of their original strength following attack by mildew organisms. (Fig. #1). Fabrics finished with the 4 coat EMYCEL system and subjected to identical conditions of exposure to mildew retain 95% of their original strength. (Fig. #2). Bursting strength recorded on Mullen Tester.

LIGHT PLANES, eyes of the Army, take cover with the troops among trees and underbrush, where fabric rotting due to mildew is unbelievably sudden and severe, especially in the tropics.

When Roxalin's fabric finish, EMYCEL, was first developed several years ago, it was specifically engineered to withstand mildew attack. Service records of Emycel finished planes prove its capacity to stand up in active use, under all climatic conditions.

Other reasons why EMYCEL is setting new standards for aircraft fabric finishing are such production advantages as the need for fewer coats and freedom from blushing in weather when doping with conventional materials is impossible.

The invention of EMYCEL is an example of Roxalin's original approach to finishing problems peculiar to the aircraft industry. Write us on your Company letterhead for further data on EMYCEL.

ROXALIN *Flexible* FINISHES
INCORPORATED
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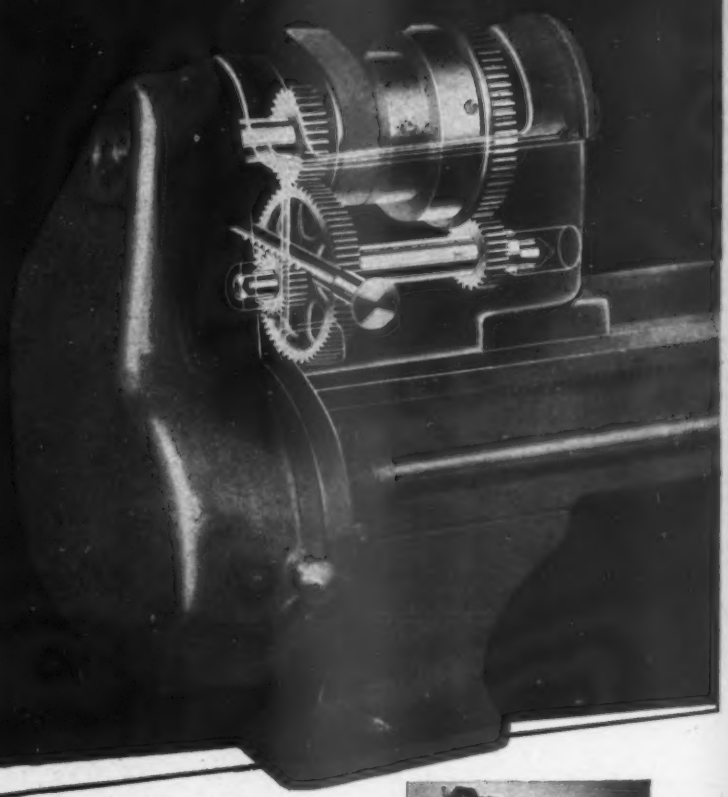
BACK GEARS ENCLOSED IN HEADSTOCK

With Patented Shifter Rack

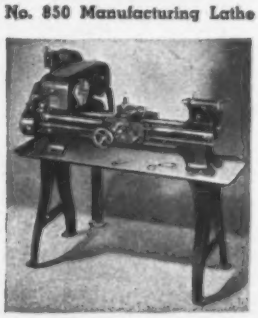
Finger Tip Control for Easier, Faster Back Gear Shifting



The advanced back gear design permits placing the patented back gear shifter rack where it belongs . . . at the operator's finger tips. No longer is it necessary to reach over the headstock to operate the lever which shifts power to back gears. Not only is the position of the back gear shifter rack safer and more convenient, but it also saves valuable seconds every time the shift is made. Finger tip accessibility of the back gear shifter rack is just one of many reasons why you find Logan Lathes in shops with outstanding production and safety records. Note the wide and durable semi-steel back gears. Write today for information on all models of Logan Lathes.

Brief Specifications: **Swing over bed, 10½" • Between centers, 24" • Bed length, 43⅛". • Spindle hole, 25/32" • Precision ground ways: 2 prismatic V-ways; 2 flat ways • 12 spindle speeds, 30 to 1450 r.p.m. • Protected by ball-bearings or self-lubricating bronze bearings.**

No. 850 Manufacturing Lathe



No. 200 Back Geared Screw Cutting Lathe

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One of a series describing the finer features of Logan Lathes . . . Look for the next of the series

Leading Aviation Stocks

New York Stock Exchange

	Week Ended Jan. 29				Week Ended Feb. 5			
	Sales	High	Low	Net Change	Sales	High	Low	Net Change
American Airlines	1,800	60½	58¼	—1½	3,100	60½	58¼	+1¼
Aviation Corp.	12,900	4	3⅝	— ⅛	11,900	3⅞	3⅝	— ⅛
Beach Aircraft	1,600	9⅝	9¼	.....	4,400	10¼	9⅜	+ ½
Bell Aircraft	3,300	13½	12⅝	— ¾	3,400	13¼	12¾	+ ⅛
Bendix Aviation	2,500	35	33⅞	—1⅛	4,400	34¾	33⅞	+ ⅛
Boeing Airplane	4,500	14⅜	13⅞	.....	5,200	14½	14	+ ¼
Braniff Airways	18,600	14	13	+ ⅝	8,500	14⅛	13⅜	+ ¼
Consolidated Vultee	8,100	13⅜	12⅝	+ ¼	6,700	13¼	12½	+ ⅛
Consolidated Vultee pfd.	1,900	22⅛	21⅜	— ⅝	2,600	22	21½	+ ⅜
Curtiss-Wright	11,900	6	5¾	+ ⅛	13,200	6	5⅝	— ¼
Curtiss-Wright A	5,200	17	16½	— ⅛	4,200	16⅞	16¼	— ⅛
Douglas Aircraft	2,600	51½	49½	—1¾	3,000	50½	48¾	— ⅝
Eastern Air Lines	2,500	36¾	35	— ¼	3,000	36¼	35	+ ⅛
Ex-Cell-O	500	23⅜	22⅞	.....	1,500	24¼	23¼	+1⅛
Grumman Aircraft Eng.	1,900	12	11¼	+ ⅛	1,300	11⅜	11⅜	.....
Lockheed Aircraft	9,700	16⅝	15⅜	— ¾	7,200	16⅛	15⅜	.....
Martin, Glenn L. Co.	5,800	17⅜	16¾	.....	4,200	17⅜	17	.....
National Aviation	1,600	11	10⅝	.....	1,500	11	10⅝	.....
North American Aviation	4,800	9⅛	8⅝	— ⅛	7,000	9	8⅝	— ⅛
Northwest Airlines	3,000	18⅜	17¾	.....	2,300	18⅝	18¼	+ ¼
Pan American Airways	8,100	31½	30⅛	— ⅝	12,400	31⅞	30¼	+1¼
Penn-Central Airlines	2,100	14⅝	14¼	+ ⅛	2,400	14⅞	14¼	+ ⅛
Sperry Corp.	5,100	26	25	.....	4,400	26⅜	25⅛	— ⅜
Thompson Products	1,800	35	34	+ ⅛	1,400	35⅜	34¼	+ ½
Trans and Western Air	1,000	19⅜	18¾	.....	900	19	18⅝	.....
United Air Lines	6,400	24⅜	23	— ½	7,000	24⅜	23⅜	+ ½
United Air Lines pfd.	3,500	104½	103	+1¼	2,000	105⅝	104⅞	+1⅛
United Aircraft	9,000	29½	28¼	— ⅛	5,900	29	28⅛	— ½
United Aircraft pfd.	900	104½	102½	—1½	1,200	102	101¼	— ½

New York Curb Exchange

	Week Ended Jan. 29				Week Ended Feb. 5			
	Sales	High	Low	Net Change	Sales	High	Low	Net Change
Aero Supply B	600	3⅞	3⅝	— ⅛	600	3⅞	3¾	+ ⅛
Air Associates	400	9¼	9	+ ⅜	400	9	8⅞	— ¼
Aircraft Accessories	3,400	2⅞	2⅜	+ ⅜	4,100	2⅞	2½	— ¼
Aro Equipment	700	8⅞	8½	— ¼	400	8¾	8½	— ¼
Bellanca Aircraft	1,200	2⅛	2⅛	.....	900	2⅛	2¾	— ⅛
Breeze Corp.	300	9¾	9¾	— ⅛	1,500	10	9⅞	+ ¼
Brewster Aero	4,300	3⅞	3¼	.....	3,200	3⅞	3⅜	— ⅜
Cessna Aircraft	1,600	6½	6⅛	— ½	2,600	6½	6	.....
Colonial Airlines	1,800	8	7	— ⅜	2,000	8	7¼	+ ¼
Fairchild Camera & Inst.	200	7½	7½	— ¼	4,700	8½	7⅜	+1
Fairchild Eng. and Air.	4,900	2¼	2	— ⅛	4,600	2¼	2	+ ⅛
Irving Air Chute	300	8	7⅞	.....	100	7¾	7¾	— ¼
Republic Aviation	5,500	3⅝	3¼	+ ⅛	8,400	3½	3¼	— ¼
Ryan Aero	200	3¾	3¾	— ⅛	200	3¾	3½	— ¼
Solar Aircraft	700	3⅛	3	.....	300	3⅛	2⅞	— ⅛
United Aircraft Prod.	1,000	8⅛	8	— ⅛	1,100	8½	8⅛	+ ⅛
Western Air Lines	500	8⅛	8	— ⅛	900	8⅛	7¾	.....

Taylorcraft Names Elkins Assistant to President

Carl W. Elkins, until a year ago general sales manager of the Taylorcraft Aviation Corp., has been appointed assistant to the president. He has recently completed a year as a pilot for Eastern Air Lines.

Elkins

Elkins' previous duties included supervision of sales, advertising, and service for Taylorcraft. In his new post, he will spend considerable time on the company's government contracts and will supervise sales and service. He will also serve on Taylorcraft's postwar planning committee.

New Books on Plane Wood

Four publications relating to woods used in aircraft construction have recently been released for the use of the industry.

From the Division of Forest Pathology of the Department of Agriculture comes release No. 12 entitled. "Decay of Wood in Aircraft." The three others are from the Forest Products Laboratory, Madison, Wis. They are: "Dry-Kiln Temperature Schedules for Aircraft Lumber No. 1360," "Compression Wood: Importance and Detection in Aircraft Veneer and Plywood No. 1586" available through the Superintendent of Documents, Government Printing Office for 10 cents and "Procedures for Measuring the Mold Resistance of Protein Glues No. 1344."

A fifth publication, issued by the Publications and Statistics Division, Civil Aeronautics Administration, is entitled "Life Tests of Electric Discharge Lamps." It is further identified as Technical Development Note No. 28.

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99.999% WATER-FREE GASOLINE!

For take off or in the air . . . give him clean, dry gasoline from an Excel-So Trans*FUEL*sion . . . so when he wheels down the runway . . . heads into the wind . . . builds up speed and momentum . . . he can ***take the air in safety*** with gasoline free from water worries. ***For the fuel lines of the air lines are the pilot's life lines.***

THE LEWIS EXCEL-SO WATER SEPARATOR

Water-free gasoline is our business. Excel-So is the only water separator to guarantee gasoline containing not more than 1/500 of 1% of water, free or emulsified. And during tests, ***Government testing engineers proved*** that Excel-so delivers gasoline 99.999% water-free!

Such high efficiency of water removal ***cannot be approached*** by any other type unit. No wonder Excel-So Water Separators are ***replacing outmoded units and outdated equipment by the hundreds.***

Excel-So employs the dual principle of scientifically designed coalescing and filtering media (patents applied for) and engineered settling chamber. Most separators rely on the settling chamber only.

Built in sizes from 25 to 1000 gpm at pressure drops not to exceed 5 lbs., with other capacities and higher operating pressures, Excel-So Water Separators can be used on all existing fueling systems; also designed and built to handle Diesel fuels and kerosene.

Bulletin No. 2007 upon request.

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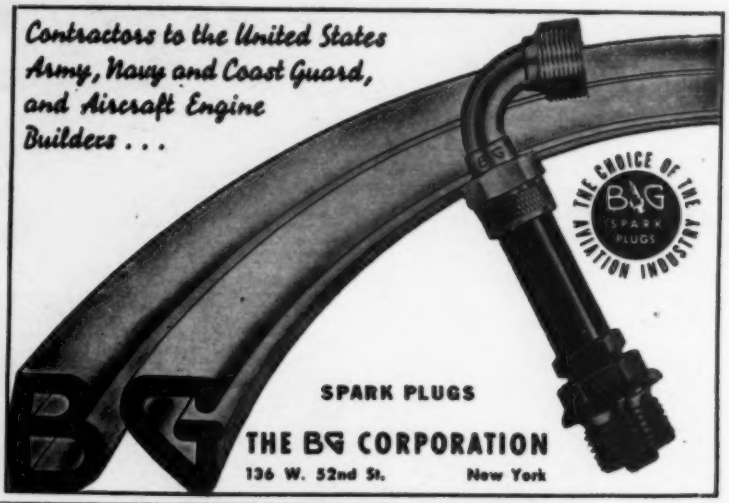
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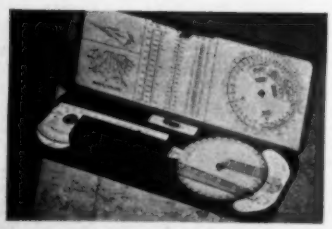
Aircraft Computers



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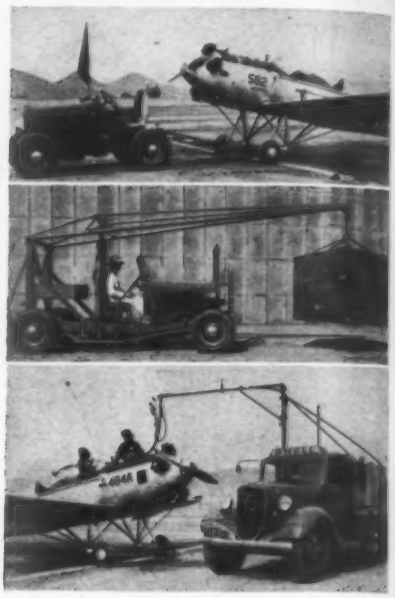
Novel Ryan Equipment



Faced with shortage of materials and manpower, the Ryan School of Aeronautics, which trains aviation cadets for the Army at Hemet, Cal., and Tucson, Ariz., has developed unique utility equipment from autos obtained from used car and salvage dealers. Three of these are shown—the Ryan Handy Man Hoist Car (top), Tow Cars (center), and Gas Truck Boom (bottom). The Ryan School has prepared a series of pamphlets to assist other civilian and military operators in the construction of similar equipment, and these are available from the company.

Incorporations

BRUNNER AIRCRAFT MFG. CO., Bronx, New York City, tools, machine parts, etc.; Charles C. Cullen, 250 W. 57th St., New York; 90 shares npv.

AVIATION SUPPLY CORP., Charlotte, N. C., aviation supplies, tools, materials, and accessories; authorized capital stock, $10,000; subscribed, $500, by Lion G. Mason and Croom Partridge, both of Atlanta, Ga., and H. H. Tish of Charlotte.

TIPTON AIRCRAFT Co., Wilmington, Del., airplane parts, etc.; capital, $100,000; S. L. Mackey, E. M. Leathen, and H. Kennedy, all of Wilmington.

COMMAND AIRCRAFT CORP., Buffalo, N. Y., aircraft of all kinds; capital, $20,000; M. Edwin Merwin.

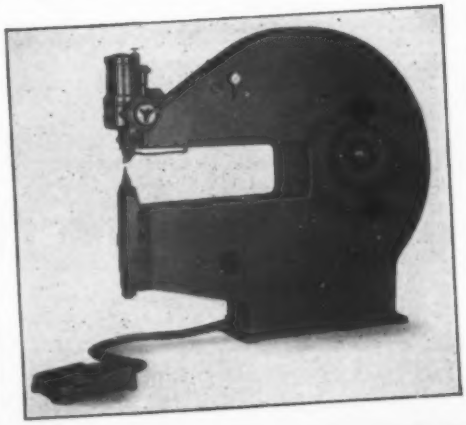
H. D. STOCKLEY CO., Sacramento, Calif., airplanes, ships, barges, and other equipment; authorized to issue 10,000 shares of common stock at par value of $10 a share; original subscribers and directors, H. D. Stockley and J. E. Little; principal office Reno, Nev.

Republic Merges Departments

Republic Aviation Corporation of Farmingdale, Long Island, has merged its public relations, advertising, sales promotion and most of the activities of its recently organized Products Analysis Department, into a new Public Relations Department under management of Gordon C. Sleeper.

This is the Douglas C-54

ERCO Automatic Riveters put one million and ten rivets a day in Douglas-built planes!



RIVETING is one of the major problems in making today's all-metal aircraft. Modern sub-assembly methods and ERCO Automatic Punching and Riveting Machines have simplified the job.

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American Propeller Installs Large X-ray Machine

A 400,000-volt X-ray machine has been installed at the American Propeller Corp., subsidiary of The Aviation Corp., Toledo, O., to speed up the process of checking hollow steel propeller blades for combat by taking "pictures" of three entire blades simultaneously.

It is now possible to obtain the required nine negatives of three blades (three for each blade) in the same time formerly required for one negative, with the same crew doing the job.

Fuel Economy for Transports

Specific fuel consumption of airplanes at normal cruising power may be cut by nearly a fourth as a result of current research projects, W. W. Davies, United Air Lines research engineer, said in a recent report to the American Society of Mechanical Engineers. Continued development of aircraft engines after the war should produce at least a horsepower for every pound of engine weight, due to better design and improved materials, Davies said. He predicts that four-wheeled planes with bigger, more efficient engines housed within the wings are possible features of future air transports.

D-C Panel Instruments

Internal pivot construction is featured in a new line of small d-c. panel instruments announced by General Electric Co., Schenectady, N. Y. The line, available in either brass or molded Textolite, 2½" size cases, includes d-c. voltmeters, ammeters, milliammeters, microammeters, radio-frequency ammeters and milliammeters and d-c. volt-ammeters. Pivots are solidly mounted on the inside of the armature shell; one jewel bearing is mounted rigidly on top of the core-and-frame assembly and the other is mounted in an adjustable sleeve fitted into the lower part of the soft core. This new design is said to improve the sturdiness of the units and make them excellent for application where vibration is present.

Curtiss-Wright 'Cadettes'

Six hundred and thirty recent woman graduates of seven leading American colleges and universities have become "engineering cadettes" in the airplane and propeller manufacturing plants of Curtiss-Wright Corp. They will replace male engineers who will be transferred to more advanced duties, the company announces.

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HELP WANTED—Pratt & Whitney Aircraft offers excellent opportunities in the engine installation field to persons trained in aircraft or engine installations. Among our many urgent requirements are the following: Aeronautical and mechanical analytical engineers for heat rejection, fuel systems, vibration and power. Design engineers, Layout draftsmen, Checkers, Detail draftsmen, Technical illustrators, Project engineers, Test engineers (flight test), Engineering aides, Sheet metal workers, Aircraft welders, Metal workers, Assembly shop helpers, Wood workers. To arrange for an interview, please write or wire your qualifications to Sales Engineering Department, or phone 8-4811, extension 391.

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FOR SALE: True Air Speed Indicator. Indicates true airspeed regardless of the altitude. For sale outright or on royalty basis. Tremendous possibilities. Address Box 623, Burlingame, California.

2-Phase to 3-Phase Transformer

Weighing less than 14 oz. and measuring 2⅝" x 2½" x 2¾", a two-phase to three-phase transformer for use with aircraft gyro instruments has been announced by General Electric. It provides correct power-supply for the operation of GE Types KB-1 and KC-1, gyro-horizon and directional gyro respectively, which are three-phase instruments equipped with the 750-va Holtzer-Cabot inverter. A 115-volt, 3-phase, 400 cycle output is supplied from the dual 26-volt and 115-volt output provided by the inverter. The transformer is said to be able to operate any one or combination of two of the above instruments and bring them up to full speed in about 1¼ minutes.

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